

Rocky Flats Site

**Quarterly Report of Site Surveillance
and Maintenance Activities
Third Quarter Calendar Year 2008**

January 2009



**U.S. DEPARTMENT OF
ENERGY**

Office of
Legacy Management

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**U.S. Department of Energy
Office of Legacy Management**

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Appendix A Landfill Inspection Forms and Survey Data

Appendix B Analytical Results for Water Samples—Third Quarter CY 2008

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Abbreviations

AL	aquatic life
Am	americium-241
AOC	Area of Concern
CAD/ROD	Corrective Action Decision/Record of Decision
CDPHE	Colorado Department of Public Health and Environment
COU	Central Operable Unit
CY	calendar year
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
ETPTS	East Trenches Plume Treatment System
gpm	gallons per minute
GWIS	groundwater intercept system
LM	Office of Legacy Management
$\mu\text{g/L}$	micrograms per liter
mg/L	milligrams per liter
M&M	monitoring and maintenance
MSPTS	Mound Site Plume Treatment System
N	nitrogen
NO ₂	nitrite
NO ₃	nitrate
OLF	Original Landfill
pCi/L	picocuries per liter
PLF	Present Landfill
PLFTS	Present Landfill Treatment System
POC	Point of Compliance
POE	Point of Evaluation
POU	Peripheral Operable Unit
Pu	plutonium-239,240
RCRA	Resource Conservation and Recovery Act
RFCA	<i>Rocky Flats Cleanup Agreement</i>
RFLMA	<i>Rocky Flats Legacy Management Agreement</i>
RFSOG	<i>Rocky Flats Site Operations Guide</i>
Site	Rocky Flats Site
SME	subject matter expert
SPPTS	Solar Ponds Plume Treatment System
Stoller	S.M. Stoller Corporation
TVS	table value standard
U	uranium
$\mu\text{g/L}$	micrograms per liter

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Executive Summary

The U.S. Department of Energy (DOE) Office of Legacy Management is responsible for implementing the final response action selected in the Final Corrective Action Decision/Record of Decision (CAD/ROD) issued September 29, 2006, for the Rocky Flats Site. Prior to the CAD/ROD, cleanup and closure activities were completed in accordance with requirements of the *Rocky Flats Cleanup Agreement* (RFCA). Under the CAD/ROD, two Operable Units were established within the boundaries of the Rocky Flats property: the Peripheral Operable Unit (POU) and the Central Operable Unit (COU). The COU consolidates all areas of the Rocky Flats Site that require additional remedial or corrective actions, while also incorporating practicalities of future land management. The POU includes the remaining, generally unimpacted, portions of the Site and surrounds the COU. The response action in the Final CAD/ROD is no action for the POU, and institutional and physical controls with continued monitoring for the COU. The CAD/ROD determined that conditions in the POU were suitable for unrestricted use. The U.S. Environmental Protection Agency (EPA) subsequently published a Notice of Partial Deletion from the National Priorities List for the POU on May 25, 2007.

The *Rocky Flats Legacy Management Agreement* (RFLMA), signed March 14, 2007, superseded RFCA. RFLMA is a Federal Facility Agreement and Consent Order under the Comprehensive Environmental Response, Compensation, and Liability Act; the Resource Conservation and Recovery Act; and the Colorado Hazardous Waste Act. It is between DOE, EPA Region 8, and the Colorado Department of Public Health and Environment. The purpose of RFLMA is to establish the regulatory framework for implementing the CAD/ROD final response action in the COU and ensuring that the COU remains protective of human health and the environment. The monitoring, surveillance, and maintenance activities for which quarterly, annual, and 5-year review reports are issued are included in RFLMA Attachment 2, "Legacy Management Requirements."

This report describes surveillance, environmental monitoring, maintenance, and associated operations that were conducted from July 1 through September 30, 2008 (third quarter calendar year 2008), under the CAD/ROD and RFLMA.

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1.0 Introduction

The U.S. Department of Energy (DOE) Office of Legacy Management (LM) is responsible for implementing the final response action selected in the Final Corrective Action Decision/Record of Decision (CAD/ROD) (DOE 2006a) issued September 29, 2006, for the Rocky Flats Site. DOE, the U.S. Environmental Protection Agency (EPA), and the Colorado Department of Public Health and Environment (CDPHE) have chosen to implement the monitoring and maintenance requirements of the CAD/ROD under and as described in the *Rocky Flats Legacy Management Agreement* (RFLMA) (DOE 2007a). Attachment 2 to RFLMA defines the Central Operable Unit (COU) remedy surveillance and maintenance requirements, the frequency for each required activity, and the monitoring and maintenance locations. The requirements include environmental monitoring; maintenance of the erosion controls, access controls (signs), landfill covers, and groundwater treatment systems; and operation of the groundwater treatment systems. RFLMA also requires that the institutional controls, in the form of use restrictions as established in the CAD/ROD, are maintained.

This report is required in accordance with Section 7.0 of Attachment 2 to RFLMA. The purpose of this report is to inform the regulatory agencies and stakeholders of the remedy-related surveillance, monitoring, and maintenance activities being conducted at the Site. LM provides periodic communications through many means (e.g., this report, Web-based tools, public meetings).

The *Rocky Flats Site Operations Guide* (RFSOG) (DOE 2008a) was prepared by LM to serve as the primary internal document to guide work to satisfy the requirements of RFLMA and implement best management practices at the Site.

Several other Site-specific documents provide additional detail regarding the requirements described in Attachment 2 to RFLMA, including all aspects of surveillance, monitoring, and maintenance activities, as well as data evaluation protocols.

Landfill inspection and monitoring tasks follow the format and protocols established in the *Present Landfill [PLF] Monitoring and Maintenance Plan and Post-Closure Plan* (M&M Plan) (DOE 2008b) and the *Final Landfill Monitoring and Maintenance Plan, Rocky Flats Environmental Technology Site, Original Landfill [OLF]* (M&M Plan) (DOE 2006b). These plans include detailed information on monitoring groundwater, surface water, subsidence and consolidation, slope stability, soil cover, vegetation, storm water management structures, and erosion in surrounding features so that maintenance actions can be implemented in a timely manner.

Monitoring data and summaries of surveillance and maintenance activities for past quarters can be found in the applicable quarterly reports. Extensive discussion and evaluation of surveillance, monitoring, and maintenance activities are presented each calendar year in the applicable annual report of Site surveillance and maintenance activities.

This report addresses remedy-related surveillance, monitoring, and maintenance activities conducted at the Site during the third quarter calendar year (CY) 2008 (July 1 through September 30).

Surveillance and maintenance activities performed in third quarter CY 2008 include:

- Maintenance and inspection of the OLF and PLF;
- Maintenance and inspection of the four groundwater treatment systems;
- Erosion control and revegetation activities; and
- Routine (per RFLMA and the RFSOG) water monitoring.

2.0 Site Operations and Maintenance

2.1 Landfills

2.1.1 Present Landfill

The PLF is inspected quarterly in accordance with the requirements of the PLF M&M Plan (DOE 2008b) and RFLMA.

2.1.1.1 Inspection Results

The routine PLF inspection for third quarter CY 2008 was performed on August 25. An evaluation of the landfill cover vegetation was performed on August 18. No significant problems were observed during these inspections. Refer to Appendix A, which provides the landfill inspection forms, for more information.

2.1.1.2 Settlement Monuments

Annual settlement monument surveys were performed during first quarter CY 2008. Refer to the survey results in the *Quarterly Report of Site Surveillance and Maintenance Activities, First Quarter Calendar Year 2008* (DOE 2008c) for additional information.

2.1.2 Original Landfill

Formal inspections of the OLF are conducted monthly, consistent with the requirements contained in the OLF M&M Plan (DOE 2006b) and RFLMA. It was anticipated that after the first year, the inspection frequency might be reduced to quarterly for an additional 4 years. However, because of observed localized slumping and seep areas, and repairs to the OLF cover that were being planned, no change to the monthly inspection frequency was recommended in the second 5-year review (DOE 2007b). Progress of construction to address the localized slumping and possible effects of seeps is discussed in Section 2.1.2.6. Changes to inspection frequencies may be proposed by DOE after completion of the construction.

2.1.2.1 Inspection Results

Routine OLF inspections during third quarter CY 2008 were performed on July 30, August 25, and September 30. An evaluation of the landfill cover vegetation was performed on August 18, 2008. Refer to the completed inspection forms in Appendix A for additional information.

2.1.2.2 *Seeps*

Seeps at the OLF were evaluated during the monthly inspections and during unscheduled visits. Seep #7 showed no surface flow during all three monthly inspections. Installation of the drain extension for Seep #7 should ensure that the seep continues to drain in the subsurface for all future inspections. More information concerning the Seep #7 drain extension can be found in Section 2.1.2.6. Seep #4 showed areas of saturation during the July and August inspections, but had minimal to no surface flow. Seep #4 expressed surface flow rates of approximately 1 gallon per minute (gpm) during the September inspection. Seep #8 showed areas of active groundwater seepage at a rate of approximately 1 to 2 gpm throughout the third quarter.

Other smaller seeps showed areas of wetness only temporarily after precipitation events. None produced any surface flow.

2.1.2.3 *Slumps*

Slumps at the OLF continued to be monitored. There were no significant changes to report. Construction to address the localized slumping and possible effects of seeps is discussed in Section 2.1.2.6.

2.1.2.4 *Settlement Monuments*

The OLF settlement monuments were surveyed on September 11, 2008. Installation of settlement monument E was postponed until completion of the geotechnical investigation of the observed localized slumping and finalization of any construction work to repair the areas in the vicinity of the location of this monument. Construction to address the localized slumping and possible effects of seeps is discussed in Section 2.1.2.6. Settlement monument E was installed on September 11, 2008, and an initial survey was completed. Subsequent settlement monument surveys will include settlement monument E. Preliminary survey data indicate that settling at each monument does not exceed the limits published in the OLF M&M Plan. Refer to the survey results in Appendix A for additional information.

2.1.2.5 *Consolidation Monitors and Inclinometers*

The OLF consolidation monitors, which were installed in September 2007 as a temporary means to monitor for movement of the cover in the vicinity of the localized slumping between the western end of diversion Berms #1 and #2, were removed in July 2008. Removal of the consolidation monitors was recommended as a result of the geotechnical investigation, during which seven inclinometers were installed to monitor for displacement over the length of the inclinometer from bedrock to the surface of the cover. Inclinometer measurements were taken monthly during third quarter CY 2008 on July 17, on August 27, and from September 25 through 30. No significant displacement was observed.

2.1.2.6 *Geotechnical Investigation*

Conditions that warranted repair and that triggered further investigation were found at the OLF during the 2007 inspections, as described in the quarterly and annual reports for 2007 and the first quarterly report for 2008 (DOE 2007c, 2007d, 2008c, 2008d, 2008e).

The *Rocky Flats Original Landfill Geotechnical Investigation Report* (Geotech Report) (DOE 2008f) was discussed in the second quarterly report for 2008 (DOE 2008g). DOE, CDPHE, and EPA agreed on the path forward for regrading the berm channels, adjusting berm heights based on a subdrainage model for each berm area, installing an extension to the Seep #7 drain, and filling the West Perimeter Channel in places to reduce the channel slopes and depths to improve side slope stability. The path forward is documented in RFLMA Contact Record 2008-07, which was approved on September 2, 2008.

The design of the Seep #7 drain extension and the diversion berm minimum height profile was approved by CDPHE on September 2, 2008, and construction was completed on September 24, 2008.

Design for the West Perimeter Channel slope stabilization work began during third quarter CY 2008, and construction will begin after CDPHE approves the final design; its approval is expected in fourth quarter CY 2008.

2.2 Groundwater Treatment Systems

Four groundwater treatment systems are operated and maintained in accordance with requirements defined in RFLMA and the RFSOG. Three of these systems (the Mound Site Plume Treatment System [MSPTS], East Trenches Plume Treatment System [ETPTS], and Solar Ponds Plume Treatment System [SPPTS]) include a groundwater intercept trench (collection trench), which is similar to a French drain with an impermeable membrane on the downgradient side. Groundwater entering the trench is routed through a drain pipe into one or more treatment cells, where it is treated and then discharged. The fourth system, the PLF Treatment System (PLFTS), treats water from the northern and southern components of the Groundwater Intercept System (GWIS) and flow from the PLF seep.

2.2.1 Mound Site Plume Treatment System

Routine maintenance activities continued at the MSPTS through third quarter CY 2008. These activities included raking the media each week, checking and flushing filters, and inspecting influent and effluent flow conditions.

2.2.2 East Trenches Plume Treatment System

Routine maintenance activities continued at the ETPTS through third quarter CY 2008. These activities included raking the media each week, checking and flushing filters, and inspecting influent and effluent flow conditions.

2.2.3 Solar Ponds Plume Treatment System

Routine maintenance activities continued at the SPPTS through third quarter CY 2008. These activities included weekly inspections of the solar/battery system that powers the pump, the operation of the pump, and influent and effluent flow conditions. In addition, construction of system upgrades began in September 2008. These upgrades include a collection sump fed by remnants of the Interceptor Trench System (ITS) that are downgradient of the groundwater intercept trench that feeds the SPPTS treatment cells, a line that transfers this water to the SPPTS for treatment, a (nonperforated) line that discharges treated effluent, and ancillary components

(e.g., metering vault, solar pump system). The path forward is documented in RFLMA Contact Record 2008-08, which was approved on September 8, 2008. These upgrades will be described in detail in the 2008 annual report.

2.2.4 PLF Treatment System

Routine maintenance activities continued at the PLFTS through third quarter CY 2008. These activities generally consisted of inspecting the system for any issues or potential problems.

2.3 Erosion Control and Revegetation

Maintenance of the Site erosion control features required continued effort throughout third quarter CY 2008, especially following high-wind or precipitation events. Repairs were made to erosion wattles and matting loosened and displaced by high winds or rain. Erosion controls were installed and maintained for the various projects that were ongoing during the third quarter. Several areas were interseeded with additional native species to increase vegetation cover.

3.0 Environmental Monitoring

This section provides a summary of the environmental monitoring that was conducted in accordance with RFLMA.

3.1 Water Monitoring

This quarterly report presents data collected during third quarter CY 2008. This section includes:

- A discussion of analytical results for the Point of Compliance (POC), Point of Evaluation (POE), PLF, and OLF monitoring objectives; and
- A summary of Resource Conservation and Recovery Act (RCRA) groundwater monitoring at the Site.

Monitoring locations, sampling criteria, and evaluation protocols for all water monitoring objectives in the following sections are detailed in Attachment 2 of RFLMA and the RFSOG. Analytical water-quality data for third quarter CY 2008 are provided in Appendix B.

3.1.1 Water Monitoring Highlights

During third quarter CY 2008, the water monitoring network successfully met the targeted monitoring objectives as required by RFLMA and in conformance with the RFSOG implementation guidance. The network consisted of 11 automated gaging stations, 10 surface water grab-sampling locations, 8 treatment system locations, 100 wells, and 8 precipitation gages. During the quarter, 16 flow-paced composite samples, 4 surface water grab samples, 6 treatment system samples, and 12 groundwater samples were collected.¹

¹ Composite samples consist of multiple aliquots (“grabs”) of identical volume. Each grab is delivered by the automatic sampler to the composite container at each predetermined flow volume or time interval. During third quarter CY 2008, the 16 flow-paced composites comprised 833 individual grabs.

All water-quality data at the RFLMA POCs remained well below the applicable standards through third quarter CY 2008.

Reportable 12-month rolling average total uranium (U) concentrations continued to be observed in surface water at RFLMA POE monitoring station GS10, which is located in South Walnut Creek upstream of Pond B-1 in the Walnut Creek Basin.

The Site continues to evaluate, in coordination with CDPHE and under RFLMA, the measured U concentrations at GS10. Recent GS10 data continue to support the conclusion that the reportable U activities are likely a result of changing hydrologic conditions (particularly the increasing groundwater component with naturally occurring U in surface water flows at GS10, relative to conditions that prevailed prior to Site closure), and that no specific remedial action is indicated at this time. The data do not suggest a previously unknown localized source of contamination that warrants targeted action.

All other POE analyte concentrations remained below reporting levels as of the end of third quarter CY 2008. Erosion and runoff controls, as well as extensive revegetation efforts, have proven to be effective in measurably reducing both sediment transport and constituent concentrations. As of the end of third quarter CY 2008, all of the POEs continued to show plutonium-239,240 (Pu) and americium-241 (Am) concentrations well below the RFLMA standards. With the removal of impervious areas resulting in decreased runoff, the stabilization of soils within the drainages, and the progression of revegetation, acceptable water quality is expected to continue.

Groundwater monitoring results will be evaluated as part of the 2008 annual report.

3.1.2 POC Monitoring

The following sections include summary tables and plots showing the applicable 30-day and 12-month rolling averages for the POC analytes.

3.1.2.1 *Location GS01*

Monitoring location GS01 is located on Woman Creek at Indiana Street. Figure 3–1 and Figure 3–2 show no occurrences of reportable 30-day averages for the quarter.

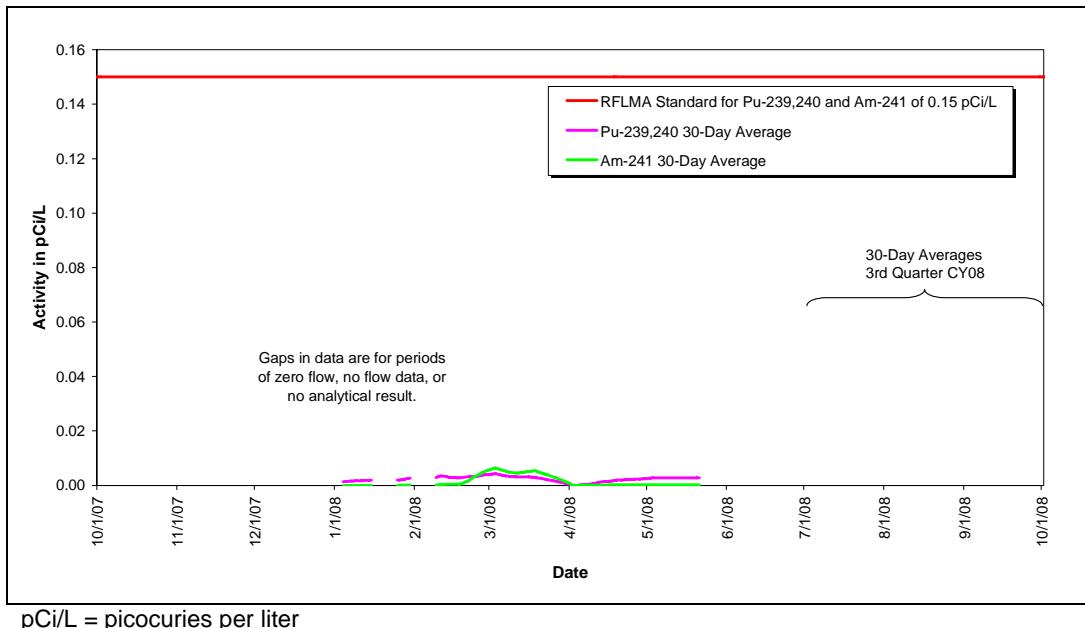


Figure 3–1. Volume-Weighted 30-Day Average Pu and Am Activities at GS01: Calendar Year Ending Third Quarter CY 2008

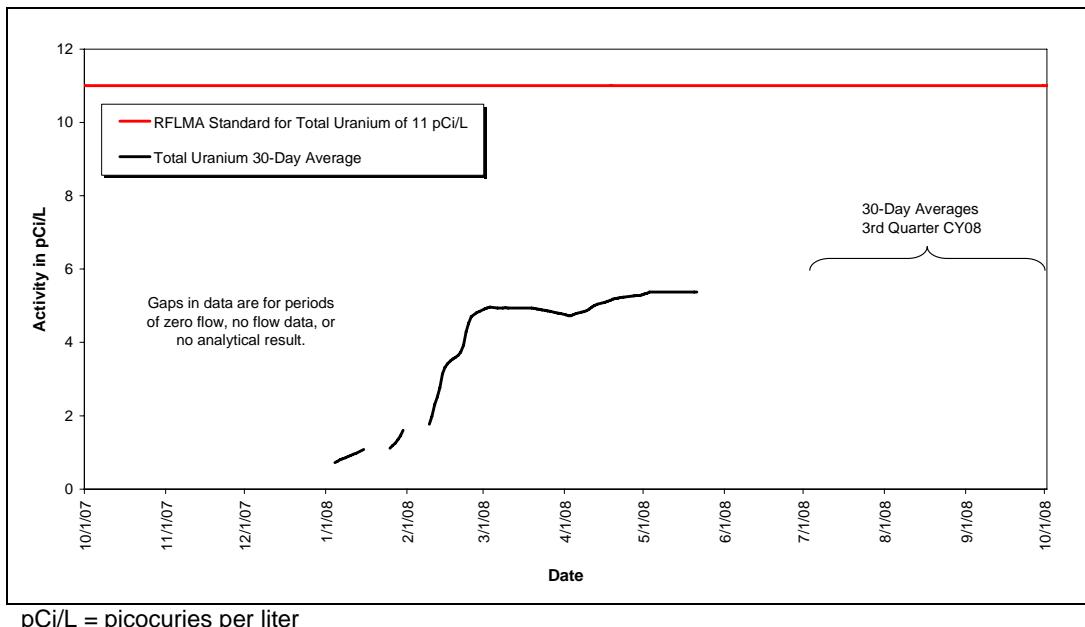
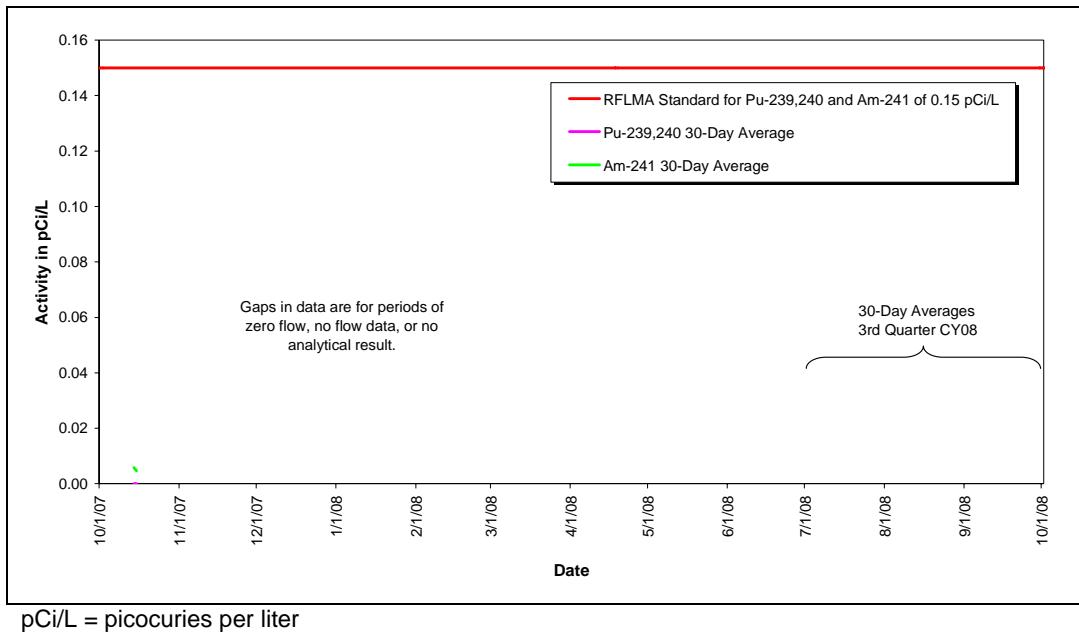


Figure 3–2. Volume-Weighted 30-Day Average Total U Activities at GS01: Calendar Year Ending Third Quarter CY 2008

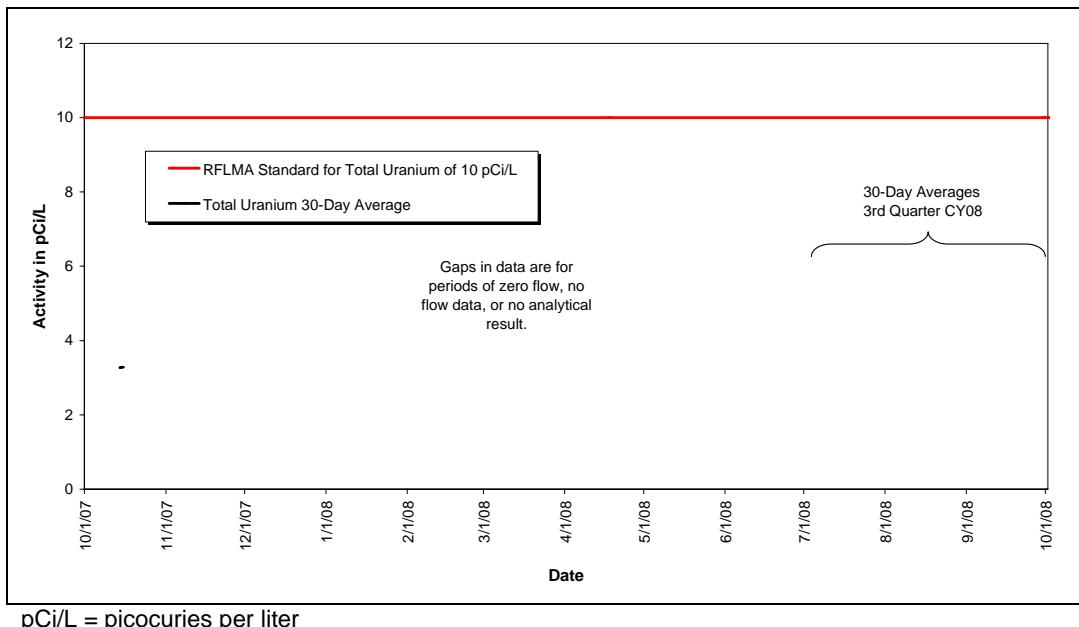
3.1.2.2 Location GS03

Monitoring location GS03 is located on Walnut Creek at Indiana Street. Figure 3–3, Figure 3–4, and Figure 3–5 show no occurrences of reportable 30-day averages for the quarter.



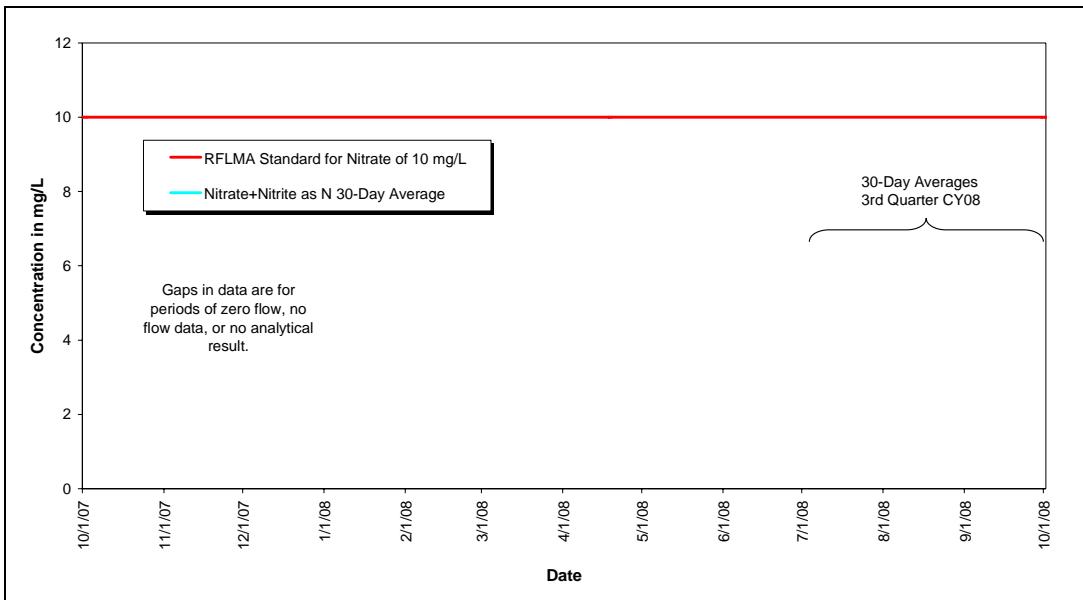
pCi/L = picocuries per liter

Figure 3–3. Volume-Weighted 30-Day Average Pu and Am Activities at GS03: Calendar Year Ending Third Quarter CY 2008



pCi/L = picocuries per liter

Figure 3–4. Volume-Weighted 30-Day Average Total U Activities at GS03: Calendar Year Ending Third Quarter CY 2008

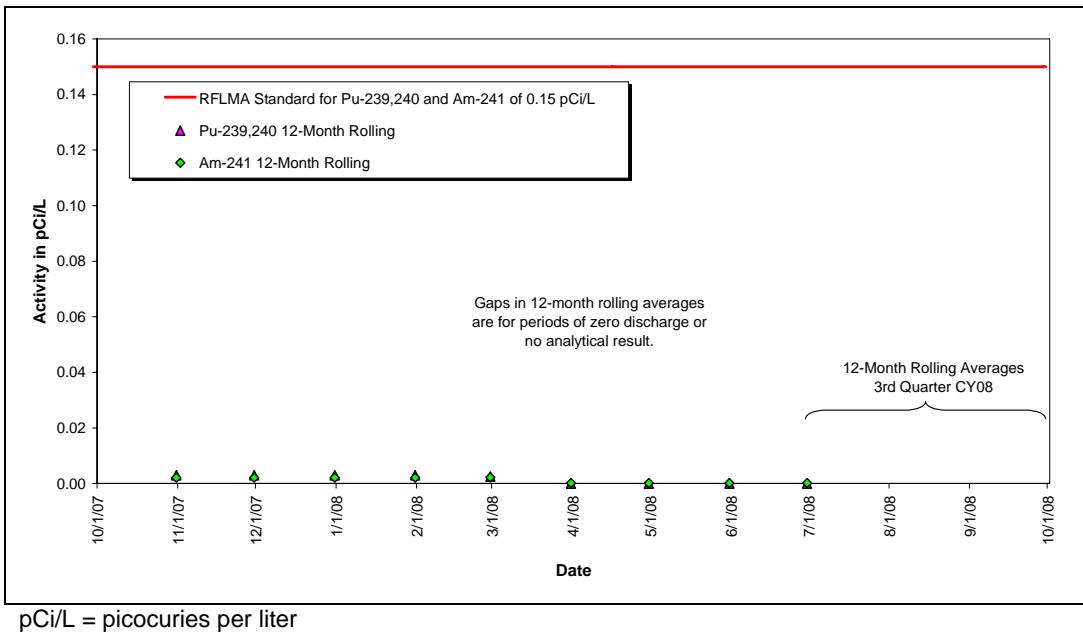


Note: Nitrate + nitrite as nitrogen 12-month averages are conservatively compared to the nitrate standard only. There have been no pond discharges in the last 12 months, and no 30-day averages are plotted.
mg/L = milligrams per liter

Figure 3-5. Volume-Weighted 30-Day Average Nitrate + Nitrite as Nitrogen Concentrations at GS03: Calendar Year Ending Third Quarter CY 2008

3.1.2.3 Location GS08

Monitoring location GS08 is located on South Walnut Creek at the outlet of Pond B-5. Figure 3-6, Figure 3-7, and Figure 3-8 show no occurrences of reportable 12-month rolling averages for the quarter.



pCi/L = picocuries per liter

Figure 3-6. Volume-Weighted 12-Month Rolling Average Pu and Am Activities at GS08: Calendar Year Ending Third Quarter CY 2008

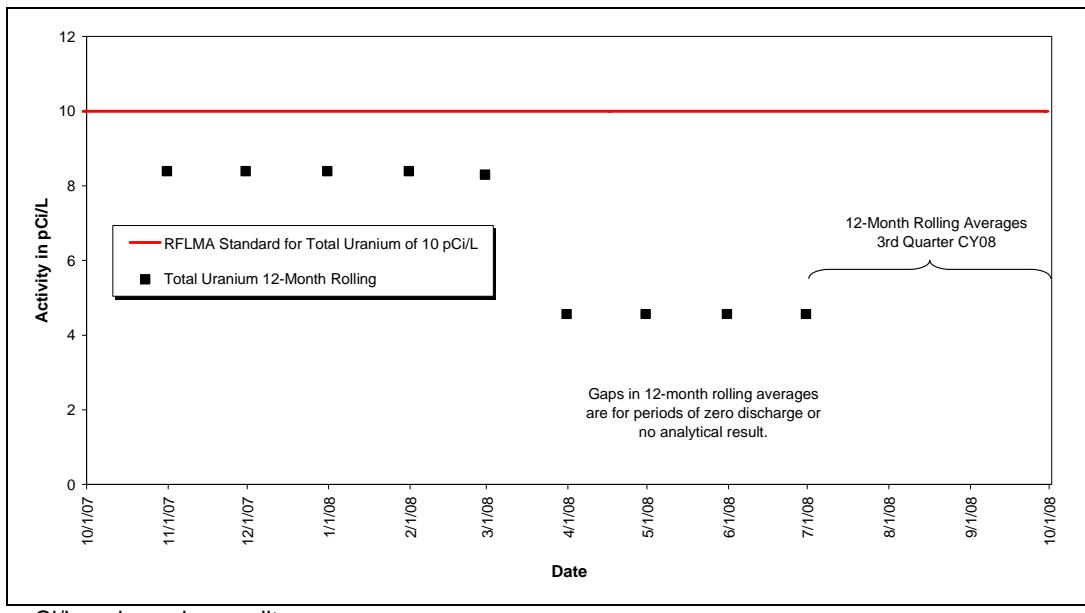
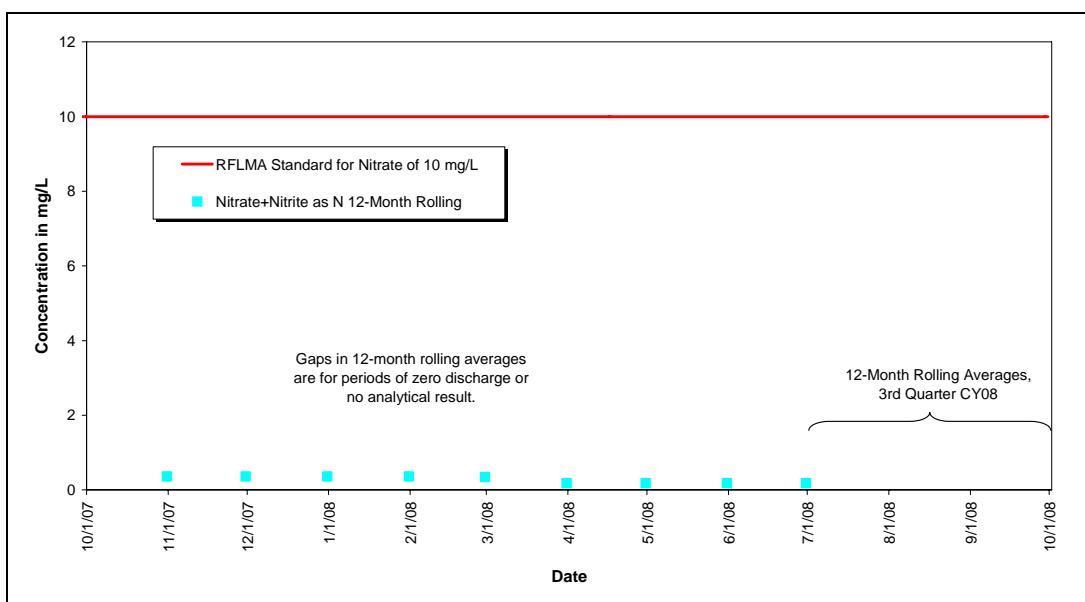


Figure 3-7. Volume-Weighted 12-Month Rolling Average Total U Activities at GS08: Calendar Year Ending Third Quarter CY 2008



Note: Nitrate + nitrite as nitrogen 12-month averages are conservatively compared to the nitrate standard only.

mg/L = milligrams per liter

Figure 3-8. Volume-Weighted 12-Month Rolling Average Nitrate + Nitrite as Nitrogen Concentrations at GS08: Calendar Year Ending Third Quarter CY 2008

3.1.2.4 Location GS11

Monitoring location GS11 is located on North Walnut Creek at the outlet of Pond A-4. Figure 3–9, Figure 3–10, and Figure 3–11 show no occurrences of reportable 12-month rolling averages for the quarter.

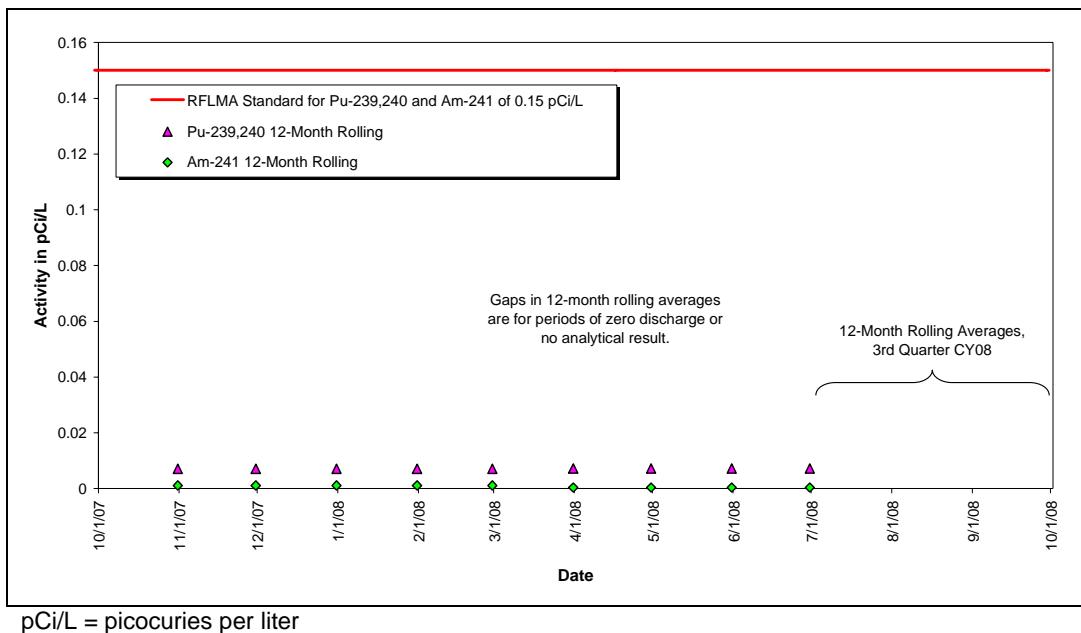


Figure 3-9. Volume-Weighted 12-Month Rolling Average Pu and Am Activities at GS11: Calendar Year Ending Third Quarter CY 2008

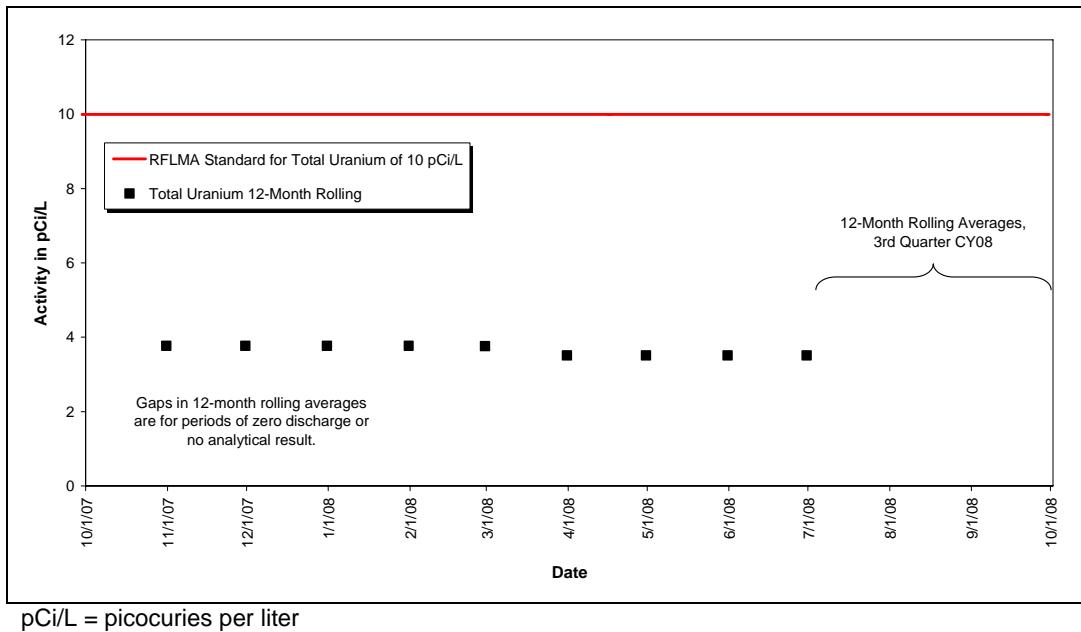
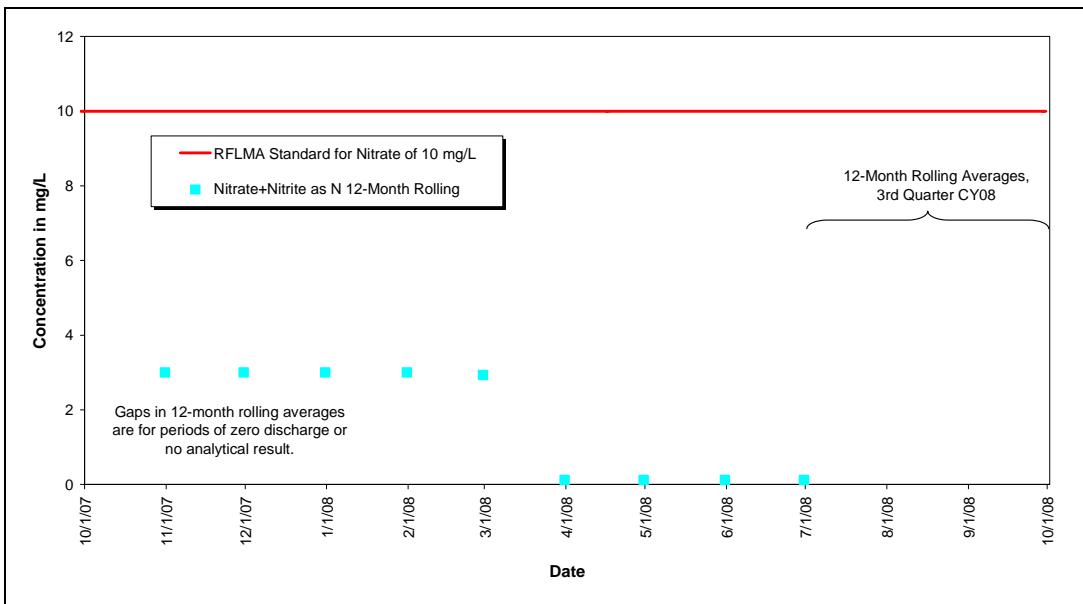


Figure 3-10. Volume-Weighted 12-Month Rolling Average Total U Activities at GS11: Calendar Year Ending Third Quarter CY 2008



Note: Nitrate + nitrite as nitrogen 12-month averages are conservatively compared to the nitrate standard only.
mg/L = milligrams per liter

Figure 3–11. Volume-Weighted 12-Month Rolling Average Nitrate + Nitrite as Nitrogen Concentrations at GS11: Calendar Year Ending Third Quarter CY 2008

3.1.2.5 *Location GS31*

Monitoring location GS31 is located on Woman Creek at the outlet of Pond C-2.

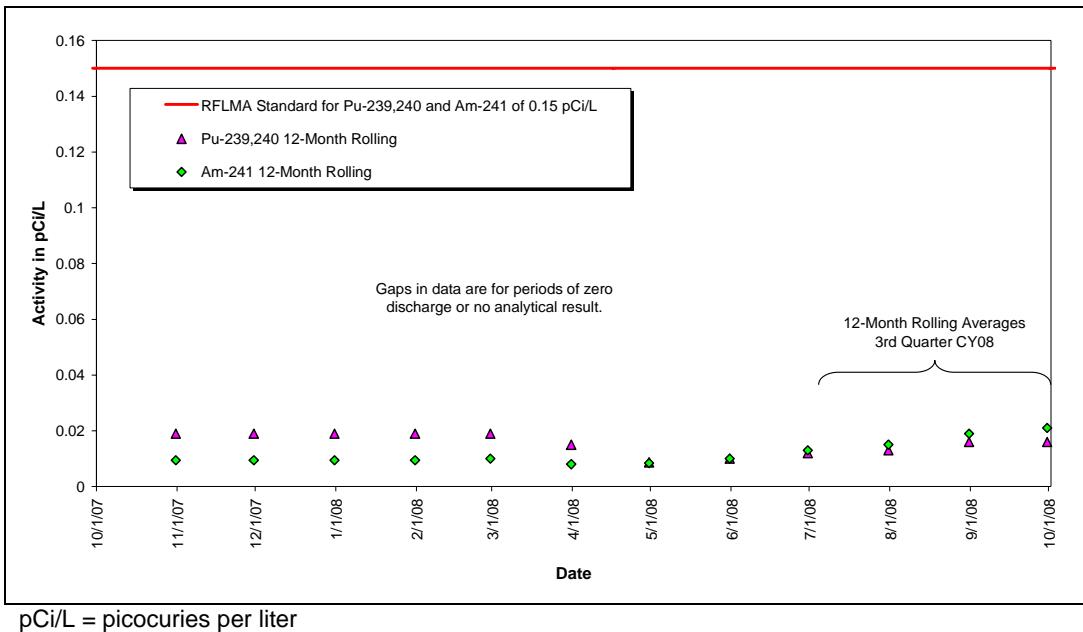
Pond C-2 has not been discharged during CY 2008. The last discharge occurred during the July 1–July 14, 2005, timeframe. Therefore, no 12-month rolling averages can be calculated after June 30, 2006, and no compliance plots are presented.

3.1.3 *POE Monitoring*

The following sections include summary tables and plots showing the applicable 30-day and 12-month rolling averages for the POE analytes.

3.1.3.1 *Location GS10*

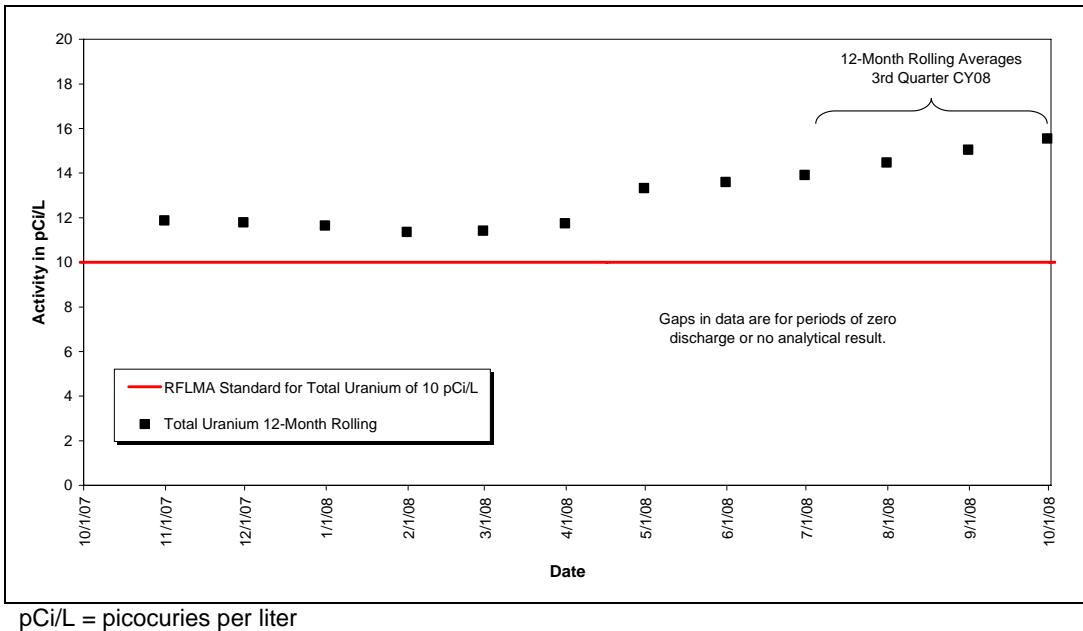
Monitoring location GS10 is located on South Walnut Creek just upstream of the B-Series Ponds. Figure 3–12 shows no reportable Pu or Am values during the quarter. None of the 85th percentile 30-day average metals concentrations were reportable for the quarter.



pCi/L = picocuries per liter

Figure 3–12. Volume-Weighted Average Pu and Am Compliance Values at GS10: Calendar Year Ending Third Quarter CY 2008

Figure 3–13 shows reportable 12-month rolling averages for total U during the quarter. The Site continues to evaluate, in coordination with CDPHE, the measured U concentrations at GS10.

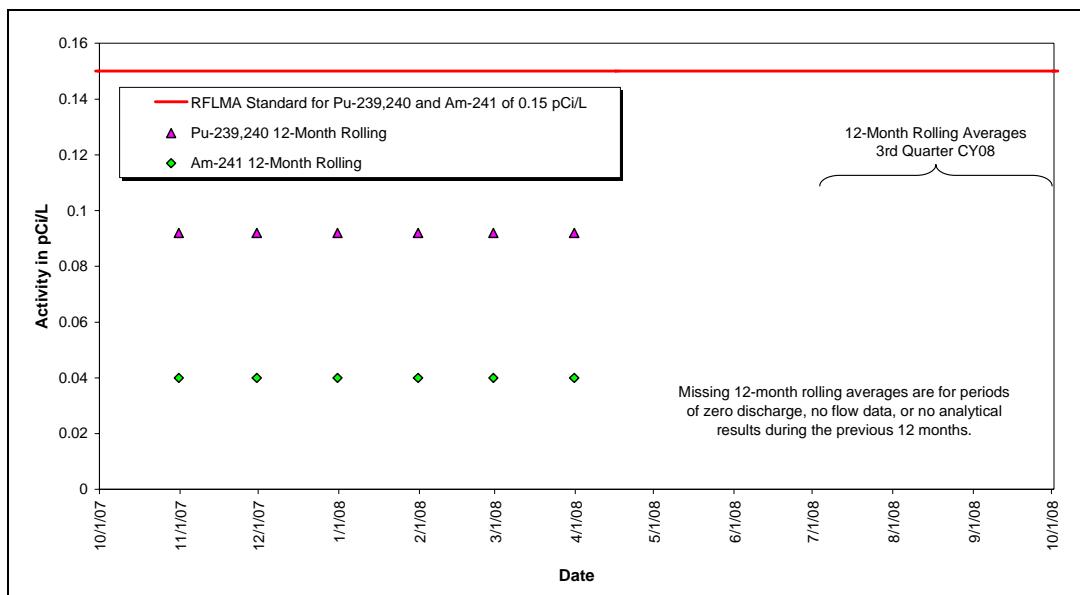


pCi/L = picocuries per liter

Figure 3–13. Volume-Weighted Average Total U Compliance Values at GS10: Calendar Year Ending Third Quarter CY 2008

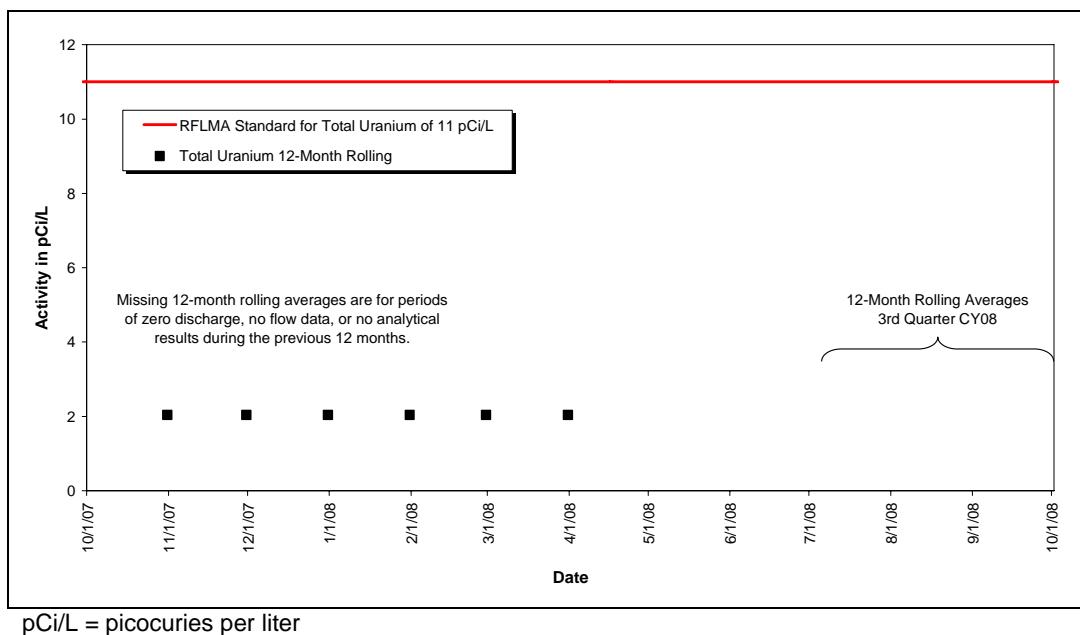
3.1.3.2 Location SW027

Monitoring location SW027 is located at the end of the South Interceptor Ditch at the inlet to Pond C-2. Figure 3–14 and Figure 3–15 show no reportable Pu, Am, or total U values during the quarter. None of the 85th percentile 30-day average metals concentrations were reportable for the quarter.



pCi/L = picocuries per liter

Figure 3–14. Volume-Weighted Average Pu and Am Compliance Values at SW027: Calendar Year Ending Third Quarter CY 2008



pCi/L = picocuries per liter

Figure 3–15. Volume-Weighted Average Total U Compliance Values at SW027: Calendar Year Ending Third Quarter CY 2008

3.1.3.3 Location SW093

Monitoring location SW093 is located on North Walnut Creek 1,300 feet upstream of the A-Series Ponds. Figure 3–16 and Figure 3–17 show no reportable Pu, Am, or total U values during the quarter. None of the 85th percentile 30-day average metals concentrations were reportable for the quarter.

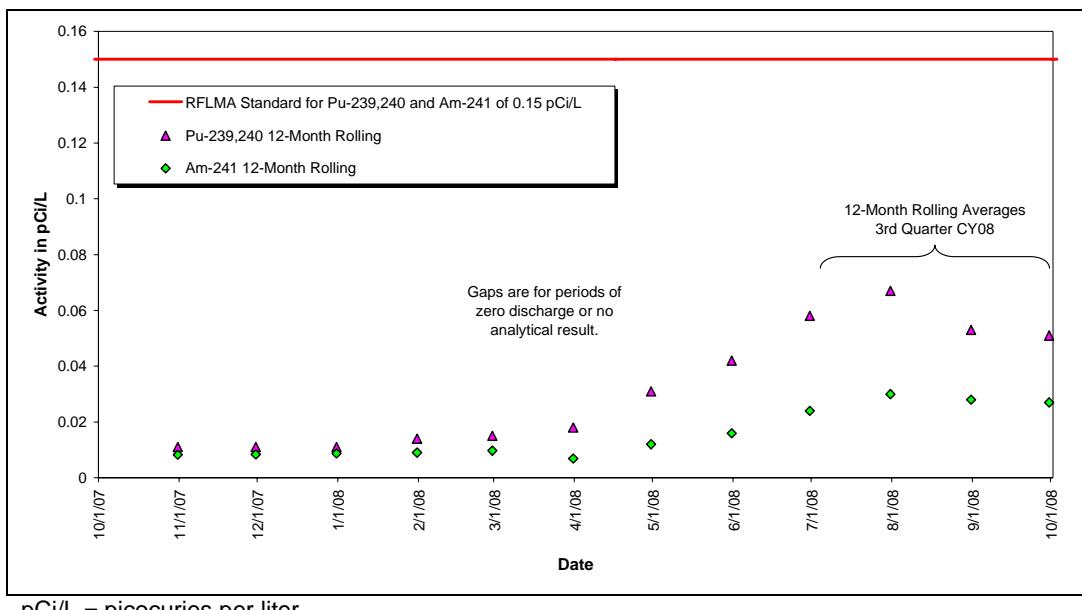


Figure 3–16. Volume-Weighted Average Pu and Am Compliance Values at SW093: Calendar Year Ending Third Quarter CY 2008

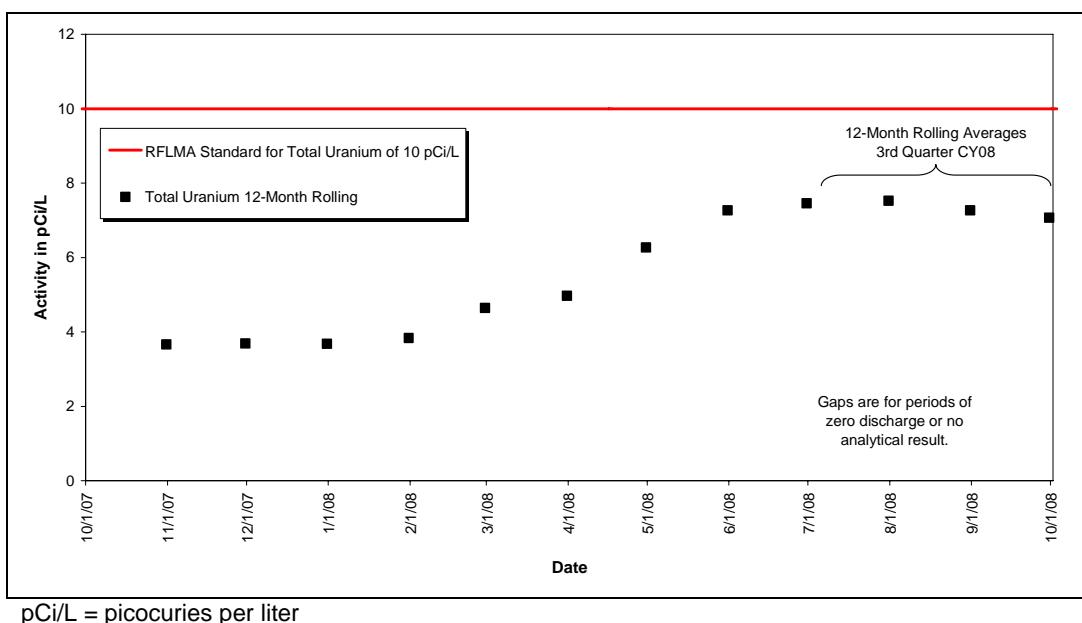


Figure 3–17. Volume-Weighted Average Total U Compliance Values at SW093: Calendar Year Ending Third Quarter CY 2008

3.1.4 Area of Concern (AOC) Wells and Surface Water Location SW018

Neither AOC wells nor SW018 were scheduled for RFLMA monitoring in third quarter CY 2008.

3.1.5 Boundary Wells

No Boundary wells were scheduled for RFLMA monitoring in third quarter CY 2008.

3.1.6 Sentinel Wells

No Sentinel wells were scheduled for RFLMA monitoring in third quarter CY 2008.

3.1.7 Evaluation Wells

No Evaluation wells were scheduled for RFLMA monitoring in third quarter CY 2008.

3.1.8 PLF Monitoring

All RCRA groundwater monitoring wells at the PLF were sampled during third quarter CY 2008. Analytical results (Appendix B) will be discussed and statistically evaluated as part of the 2008 annual report. Surface water monitoring at the PLF is discussed in Section 3.1.10.4.

3.1.9 OLF Monitoring

All RCRA groundwater monitoring wells at the OLF were sampled during third quarter CY 2008. Analytical results (Appendix B) will be discussed and statistically evaluated as part of the 2008 annual report. Surface water downgradient of the OLF, as monitored at location GS59, shows no adverse impact from the OLF due to elevated concentrations of boron or U in groundwater.

During second quarter CY 2008, when routine surface water sampling was performed at Woman Creek downstream of the OLF (GS59), the analytical result for selenium was greater than the applicable surface water standard (Table 3–1).

Table 3–1. Woman Creek (GS59): Summary of Routine Second Quarter CY 2008 Sampling Analytical Results Exceeding RFLMA Surface Water Standards

Composite Sample Period	Analyte	Result	Unit	RFLMA Standard	Basis for Standard ^a
5/14/08 10:19 – 6/25/08 9:34	Selenium	7.0	µg/L	4.6	AL

Note: ^a Basis acronyms: AL = aquatic life
µg/L = micrograms per liter

For selenium at GS59, the routine result (during the second quarter) triggered increased monthly sampling frequency per the RFLMA flowchart (see Table 3–2 for detail). The subsequent sample also showed selenium to be above the standard. Increased sampling frequency continued at GS59. Results from the third consecutive sample (during the third quarter) show selenium to be

undetected. All third quarter CY 2008 data indicate that the remedy is functioning properly as related to surface water quality.

Table 3–2. Woman Creek (GS59): Summary of Monthly Analytical Results

Analyte	Composite Sample Period	Result	Unit
Selenium	5/14/08 10:19 – 6/25/08 9:34	7.0	µg/L
	6/25/08 9:34 – 7/21/08 11:58	8.2	µg/L
	7/21/08 11:58 – 8/16/08 13:13	nondetect	µg/L
	Status:	Discontinue monthly sampling for selenium	

Note: The initial result triggering monthly sampling is shown in **bold**.

µg/L = micrograms per liter

3.1.10 Groundwater Treatment System Monitoring

As described in Section 2.2, contaminated groundwater is intercepted and treated in four areas of the Site. The MSPTS, ETPTS, and SPPTS include a groundwater intercept trench. Groundwater entering the trench is routed through a drain pipe into one or more treatment cells, where it is treated and then discharged to surface water. The PLFTS treats water from the northern and southern components of the GWIS and flow from the PLF seep.

3.1.10.1 Mound Site Plume Treatment System

No MSPTS monitoring locations were scheduled for RFLMA sampling in third quarter CY 2008.

3.1.10.2 East Trenches Plume Treatment System

No ETPTS monitoring locations were scheduled for RFLMA sampling in third quarter CY 2008.

3.1.10.3 Solar Ponds Plume Treatment System

No SPPTS monitoring locations were scheduled for RFLMA sampling in third quarter CY 2008.

3.1.10.4 PLF Treatment System

During collection of the July 9, 2008, sample at the system influent (location PLFSEEPINF), the flow rate was 1.11 gpm. As of September 30, 2008, the Landfill Pond outlet remained in an open configuration.

During third quarter CY 2008, routine sampling of the treated effluent exiting the system (location PLFSYSEFF) showed that vinyl chloride was greater than the applicable surface water standard (Table 3–3). All other third quarter CY 2008 data indicate that the remedy is functioning properly as related to surface water quality.

Table 3–3. PLFTS Effluent (PLFSYSEFF): Summary of Routine Third Quarter CY 2008 Grab Sampling Analytical Results Exceeding RFLMA Surface Water Standards (July 9, 2008, Sample)

Analyte	Result	Unit	RFLMA Standard	Basis for Standard ^a
Vinyl chloride	0.374	µg/L	0.2 (PQL)	W+F

Note: ^a Basis acronyms: W+F = Water plus Fish
 µg/L = micrograms per liter; PQL = practical quantitation limit

For vinyl chloride at the PLFSYSEFF, the routine quarterly result triggered monthly sampling per the RFLMA flowchart (see Table 3–4 for detail). The subsequent monthly sample showed vinyl chloride as undetected. Given this result, monthly sampling of the PLFTS effluent for vinyl chloride was discontinued.

Table 3–4. PLFTS Effluent (PLFSYSEFF): Summary of Monthly Analytical Results

Analyte	Sample Date	Result	Unit
Vinyl chloride	7/9/08	0.374	µg/L
	8/12/08	nondetect	µg/L
	Status:	Discontinue monthly sampling for vinyl chloride	

Note: The initial result triggering monthly sampling is shown in **bold**. The routine quarterly sample results are shown in *italics*.

µg/L = micrograms per liter

3.1.11 Pre-Discharge Monitoring

Pre-discharge samples are collected prior to discharge at Ponds A-4, B-5, and C-2 on North Walnut Creek, South Walnut Creek, and Woman Creek, respectively.

No ponds were pre-discharge-sampled during third quarter CY 2008.

4.0 Adverse Biological Conditions

There was no evidence of adverse biological conditions (e.g., unexpected mortality or morbidity) observed during monitoring and maintenance activities in third quarter CY 2008.

5.0 References

DOE (U.S. Department of Energy), 2006a. *Corrective Action Decision/Record of Decision for Rocky Flats Plant (USDOE) Peripheral Operable Unit and Central Operable Unit*, September.

DOE (U.S. Department of Energy), 2006b. *Final Landfill Monitoring and Maintenance Plan, Rocky Flats Environmental Technology Site, Original Landfill*, Rocky Flats Environmental Technology Site, Golden, Colorado, February.

DOE (U.S. Department of Energy), 2007a. *Rocky Flats Legacy Management Agreement*, March 14.

DOE (U.S. Department of Energy), 2007b. *Second Five-Year Review Report for the Rocky Flats Site, Jefferson and Boulder Counties, Colorado*, September.

DOE (U.S. Department of Energy), 2007c. *Rocky Flats Site Quarterly Report of Site Surveillance and Maintenance Activities, First Quarter Calendar Year 2007*, July.

DOE (U.S. Department of Energy), 2007d. *Rocky Flats Site Quarterly Report of Site Surveillance and Maintenance Activities, Second Quarter Calendar Year 2007*, October.

DOE (U.S. Department of Energy), 2008a. *Rocky Flats Site Operations Guide*, September.

DOE (U.S. Department of Energy), 2008b. *Present Landfill Monitoring and Maintenance Plan and Post-Closure Plan*, Rocky Flats Environmental Technology Site, Golden, Colorado, March.

DOE (U.S. Department of Energy), 2008c. *Rocky Flats Site Quarterly Report of Site Surveillance and Maintenance Activities, First Quarter Calendar Year 2008*, July.

DOE (U.S. Department of Energy), 2008d. *Rocky Flats Site Quarterly Report of Site Surveillance and Maintenance Activities, Third Quarter Calendar Year 2007*, January.

DOE (U.S. Department of Energy), 2008e. *Rocky Flats Site Annual Report of Site Surveillance and Maintenance Activities, Calendar Year 2007*, April.

DOE (U.S. Department of Energy), 2008f. *Rocky Flats Original Landfill Geotechnical Investigation Report*, Jefferson County, Colorado, June 4.

DOE (U.S. Department of Energy), 2008g. *Rocky Flats Site Quarterly Report of Site Surveillance and Maintenance Activities, Second Quarter Calendar Year 2008*, October.

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Appendix A

Landfill Inspection Forms and Survey Data

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ORIGINAL LANDFILL – MONITORING AND MAINTENANCE PROGRAM

INSPECTION FORM

INSPECTOR: J. McLaughlin

DATE: 7/30/08

TIME: 1700 REVIEWED BY: Joyce Syrett

TEMPERATURE: 92°F

WEATHER CONDITIONS: Sunny

REVIEW DATE: 8-5-08

METEOROLOGICAL STATION LOCATION: NREL Wind Site

SUBSIDENCE / CONSOLIDATION

REGION	EVIDENCE OF CRACKS?	EVIDENCE OF DEPRESSIONS?	EVIDENCE OF SINK HOLES?	EVIDENCE OF PONDING?	OTHER (DESCRIBE BELOW)
COVER - WEST	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	WPC Slump
COVER - EAST	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Berm 7 crack Berm 4 depression
BUTTRESS FILL	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—			
DIVERSION BERM 1	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—			
DIVERSION BERM 2	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—			
DIVERSION BERM 3	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	small amount of surface flow from Sept #4
DIVERSION BERM 4	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Berm 4 depression
DIVERSION BERM 5	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Berm 4 depression
DIVERSION BERM 6	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Low spot 100' west of EPC
DIVERSION BERM 7	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Berm 7 crack

Settlement Plates on Top of cover to be inspected for integrity.
During Year 1, they will be surveyed quarterly, and annually thereafter.

Integrity intact?
 Yes No

MAINTENANCE REQUIRED / COMMENTS/PHOTO LOG

Slumps and depressions mentioned in previous inspections remain unchanged. Problem areas discussed in this inspection as well as previous inspections will be addressed during an OLF Repair project that will be initiated later this year.

SLOPE STABILITY

REGION	CRACKS?		EVIDENCE OF BLOCK OR CIRCULAR FAILURE?	EVIDENCE OF SEEPs?	OTHER? (DESCRIBE BELOW)
	EVIDENCE OF SEEPs?				
COVER - WEST	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	—
COVER - EAST	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	—
BUTTRESS FILL SIDESLOPE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—
WEST PERIMETER CHANNEL SIDESLOPES	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	—
EAST PERIMETER CHANNEL SIDESLOPES	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—
COVER SEEPs (IF PRESENT)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	—
				<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No	

MAINTENANCE REQUIRED / COMMENTS/PHOTO LOG

Landfill cover is very dry! Seep #7 remains dry. Seep #4 was still wet and had very small amounts of standing water. There was no surface flow associated with Seep #4. Seep #8 was still flowing @ a rate of 1-2gpm. The EPC & WPC side slopes will be repaved during the OLF Repair Project.

SOIL COVER

REGION	EVIDENCE OF SOIL DEPOSITION OR EROSION?	EVIDENCE OF EROSION RILLS/GULLIES?	EVIDENCE OF BURROWING ANIMALS?	OTHER (DESCRIBE BELOW)
COVER - WEST	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	-
COVER - EAST	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	-
BUTTRESS FILL	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	-
BUTTRESS FILL SIDESLOPE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	-

MAINTENANCE REQUIRED / COMMENTS/PHOTO LOG

Prarie dogs have been spotted in the area, but no burrows have been made.

Quarterly Vegetation Survey will be completed in August.

VEGETATION

REGION	CONDITION OF GRASS	UNWANTED VEGETATION PRESENT*?	PERCENTAGE OF GRASS VERSUS BARE GROUND?	PERCENTAGE OF UNWANTED VEGETATION?
COVER- WEST		<input type="checkbox"/> Yes <input type="checkbox"/> No		
COVER - EAST		<input type="checkbox"/> Yes <input type="checkbox"/> No		
DIVERSION BERM 1		<input type="checkbox"/> Yes <input type="checkbox"/> No		
DIVERSION BERM 2		<input type="checkbox"/> Yes <input type="checkbox"/> No		
DIVERSION BERM 3		<input type="checkbox"/> Yes <input type="checkbox"/> No		
DIVERSION BERM 4		<input type="checkbox"/> Yes <input type="checkbox"/> No		
DIVERSION BERM 5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	J ~	
DIVERSION BERM 6		<input type="checkbox"/> Yes <input type="checkbox"/> No		
DIVERSION BERM 7		<input type="checkbox"/> Yes <input type="checkbox"/> No		
WEST PERIMETER CHANNEL		<input type="checkbox"/> Yes <input type="checkbox"/> No		
EAST PERIMETER CHANNEL		<input type="checkbox"/> Yes <input type="checkbox"/> No		
UPPER BUTTERESS FILL SIDESLOPE		<input type="checkbox"/> Yes <input type="checkbox"/> No		
LOWER BUTTRESS FILL SIDESLOPE		<input type="checkbox"/> Yes <input type="checkbox"/> No		

* Unwanted vegetation includes weeds and deep-rooting trees.

MAINTENANCE REQUIRED / COMMENTS/PHOTO LOG

STORMWATER MANAGEMENT STRUCTURES

CHANNELS / LINING

STRUCTURE	EVIDENCE OF EXCESSIVE EROSION, GULLYING, SCOUR, OR UNDERMINING?	EVIDENCE OF SETTLEMENT/ SUBSIDENCE OR DEPRESSIONS?	EVIDENCE OF BREACHING OR BANK FAILURE?	EVIDENCE OF BURROWING ANIMALS?	EVIDENCE OF SEDIMENT BUILD-UP OR OTHER BLOCKAGE?	EVIDENCE OF LINING DETERIORATION, HOLES, RIPS, OR SEPARATION?	EVIDENCE OF LINING DISPLACEMENT?
DIVERSION BERM 1	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
DIVERSION BERM 2	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
DIVERSION BERM 3	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
DIVERSION BERM 4	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
DIVERSION BERM 5	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
DIVERSION BERM 6	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
DIVERSION BERM 7	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
CHECK DAMS	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
WEST PERIMETER CHANNEL	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
EAST PERIMETER CHANNEL	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			

OTHER DEFICIENCIES?

None.

MAINTENANCE REQUIRED / COMMENTS/PHOTO LOG

Drainage of WPC + EPC remains un-impeded. Berms and perimeter channels will be repaired during OLF Repair Project.

STORMWATER MANAGEMENT STRUCTURES (CONTINUED)

OUTFALLS

CHECK EACH STRUCTURE FOR EXCESSIVE EROSION AND SEDIMENT DEPTH. IF SEDIMENT DEPTH IS COMPROMISING THE DESIGN CHARACTERISTICS, REMOVE SEDIMENT.

STRUCTURE	CONDITION / SEDIMENT DEPTH
DIVERSION BERM OUTFALL 1	Good condition / Minimal sediment
DIVERSION BERM OUTFALL 2	
DIVERSION BERM OUTFALL 3	
DIVERSION BERM OUTFALL 4	
DIVERSION BERM OUTFALL 5	
DIVERSION BERM OUTFALL 6	
DIVERSION BERM OUTFALL 7	Fair / End of Berm #7 has slumped into EPC. Good condition / Minimal sediment.
WEST PERIMETER CHANNEL OUTFALL	
EAST PERIMETER CHANNEL OUTFALL	
FRENCH DRAIN OUTFALL (SID)	

OTHER DEFICIENCIES?

None.

MAINTENANCE REQUIRED / COMMENTS/PHOTO LOG

End of Berm #7 will be repaired during OLF Repair Project.

"RUN-ON" CONTROL

AREA	ADVERSELY AFFECTING OLF?		
NORTH OF THE ORIGINAL LANDFILL	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	COMMENT: —
WEST OF THE WEST PERIMETER CHANNEL	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	COMMENT: —
EAST OF THE EAST PERIMETER CHANNEL	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	COMMENT: —
NORTH OF WOMAN CREEK	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	COMMENT: —

MAINTENANCE REQUIRED

None

INSTITUTIONAL CONTROLS

ITEM			COMMENT:
EVIDENCE OF EXCAVATION(S) OF COVER AND IMMEDIATE VICINITY OF COVER?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	—
EVIDENCE OF CONSTRUCTION OF ROADS, TRAILS ON COVER OR BUILDINGS?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	—
EVIDENCE OF UNAUTHORIZED ENTRY?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	—
EVIDENCE OF DRILLING OF WELLS OR USE OF GROUNDWATER?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	—
DAMAGE OR REMOVAL OF ANY SIGNAGE OR GROUNDWATER MONITORING WELLS?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	—

OTHER DEFICIENCIES/PHOTO LOG

None.

ACTION ITEMS

DEFICIENCY	DATE NOTED	ACTION	DATE COMPLETED	COMMENTS
Erosion matting on barn #6 rolled up.	7/30/08	Replaced and secured erosion matting	7/30/08	-

INSPECTOR SIGNATURE:

DATE: 7/30/08

REVIEWER SIGNATURE:

DATE: 8-5-08

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ORIGINAL LANDFILL – MONITORING AND MAINTENANCE PROGRAM

INSPECTION FORM

INSPECTOR: J. McLaughlin

DATE: 8/25/08 TIME: 1100 REVIEWED BY: George Syrett

TEMPERATURE: 80°F WEATHER CONDITIONS: Sunny + clear REVIEW DATE: 8-27-08

METEOROLOGICAL STATION LOCATION: NREL Wind Site

SUBSIDENCE / CONSOLIDATION

REGION	EVIDENCE OF CRACKS?	EVIDENCE OF DEPRESSIONS?	EVIDENCE OF SINK HOLES?	EVIDENCE OF PONDING?	OTHER (DESCRIBE BELOW)
COVER – WEST	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	WPC Slump Berm & crack
COVER – EAST	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Berm & depression
BUTTRESS FILL	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—			
DIVERSION BERM 1	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—			
DIVERSION BERM 2	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—			
DIVERSION BERM 3	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	small depression b2 scap #4
DIVERSION BERM 4	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Berm 4 depression
DIVERSION BERM 5	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Extension of Berm 4 depression
DIVERSION BERM 6	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	low spot 100' west of ETC
DIVERSION BERM 7	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Berm 7 crack

Settlement Plates on Top of cover to be inspected for integrity.

During Year 1, they will be surveyed quarterly, and annually thereafter.

Integrity intact?

Yes No

MAINTENANCE REQUIRED / COMMENTS/PHOTO LOG

Stumps + depressions remain unchanged. Berm depressions will be repaired during berm re-grade project beginning early September 2008.

SLOPE STABILITY

REGION	cracks		EVIDENCE OF BLOCK OR CIRCULAR FAILURE?	EVIDENCE OF SEEPS?	OTHER? (DESCRIBE BELOW)
	EVIDENCE OF SEEPS?				
COVER - WEST	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes No <i>No cracks in cover only in WPC</i>
COVER - EAST	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes No <i>No cracks in cover only in EPC</i>
BUTTRESS FILL SIDESLOPE	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes No <i>-</i>
WEST PERIMETER CHANNEL SIDESLOPES	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes No <i>-</i>
EAST PERIMETER CHANNEL SIDESLOPES	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes No <i>-</i>
COVER SEEPS (IF PRESENT)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes No <i>-</i>
					<input type="checkbox"/> Yes No <i>-</i>
					<input type="checkbox"/> Yes No <i>-</i>

MAINTENANCE REQUIRED / COMMENTS/PHOTO LOG

Landfill cover remains very dry. Seep #7 has no surface expression. Seep #4 has saturated areas, but no flow. Seep #8 is still flowing @ 1-2 gpm.
The EPC + WPC side slopes will be repaired during a perimeter channel re-grade project.

SOIL COVER

REGION	EVIDENCE OF SOIL DEPOSITION OR EROSION?	EVIDENCE OF EROSION RILLS/GULLIES?	EVIDENCE OF BURROWING ANIMALS?	OTHER (DESCRIBE BELOW)
COVER - WEST	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	-
COVER - EAST	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	-
BUTTRESS FILL	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	-
BUTTRESS FILL SIDESLOPE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	-

MAINTENANCE REQUIRED / COMMENTS/PHOTO LOG

No recent sightings of prairie dogs in the OLF area.

VEGETATION

8/18/08

OLF Vegetation Survey

Lady Nels

REGION	CONDITION OF GRASS	UNWANTED VEGETATION PRESENT?	PERCENTAGE OF GRASS VERSUS BARE GROUND?	PERCENTAGE OF UNWANTED VEGETATION?
COVER- WEST	none to good	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	0-90%	CEDII, ERICII ≤ 10%
COVER - EAST	none to good	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	0-100%	ERCHI, CEDII ≤ 10%
DIVERSION BERM 1	none to good	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	0-95%	BRTETI ≤ 10%
DIVERSION BERM 2	none to good	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	0-90%	CIARI ≤ 10%
DIVERSION BERM 3	Spars to moderate	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5-70%	CEOII ≤ 10%
DIVERSION BERM 4	none to moderate	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	0-55%	ERCHI ≤ 10%
DIVERSION BERM 5	none to moderate	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	0-70%	CEOII, HYPERI ≤ 10%
DIVERSION BERM 6	none to moderate	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	0-60%	none observed today ≤ 10%
DIVERSION BERM 7	none to good	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	0-80%	CLDI, VETHI ≤ 10%
WEST PERIMETER CHANNEL	none to good	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	0-70%	VETHI ≤ 10%
EAST PERIMETER CHANNEL	none to good	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	0-90%	VETHI ≤ 10%
UPPER BUTTERESS FILL SIDESLOPE	none to good	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	0-70%	none observed today ≤ 10%
LOWER BUTTERESS FILL SIDESLOPE	Spars to good	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10-90%	VETHI, BRTETI, LIDAI ≤ 10%

* Unwanted vegetation includes weeds and deep-rooting trees.

MAINTENANCE REQUIRED / COMMENTS

OLF was sprayed in June 2008 - so not much to weeds this year. Looks good - places.
 Other places still sparse.

8/18/08

STORMWATER MANAGEMENT STRUCTURES

CHANNELS / LINING

STRUCTURE	EVIDENCE OF EXCESSIVE EROSION, GULLYING, SCOUR, OR UNDERMINING?	EVIDENCE OF SETTLEMENT/ SUBSIDENCE OR DEPRESSIONS?	EVIDENCE OF BREACHING OR BANK FAILURE?	EVIDENCE OF BURROWING ANIMALS?	EVIDENCE OF SEDIMENT BUILD-UP OR OTHER BLOCKAGE?	EVIDENCE OF LINING DETERIORATION, HOLES, RIPS, OR SEPARATION?	EVIDENCE OF LINING DISPLACEMENT?
DIVERSION BERM 1	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
DIVERSION BERM 2	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
DIVERSION BERM 3	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
DIVERSION BERM 4	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
DIVERSION BERM 5	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
DIVERSION BERM 6	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
DIVERSION BERM 7	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
CHECK DAMS	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
WEST PERIMETER CHANNEL	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
EAST PERIMETER CHANNEL	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

OTHER DEFICIENCIES?

None.

MAINTENANCE REQUIRED / COMMENTS/PHOTO LOG

Berm's will be repaired during berm re-grade project beginning in early September.
Perimeter channels will be repaired in a subsequent re-grade project.

STORMWATER MANAGEMENT STRUCTURES (CONTINUED)

OUTFALLS

CHECK EACH STRUCTURE FOR EXCESSIVE EROSION AND SEDIMENT DEPTH. IF SEDIMENT DEPTH IS COMPROMISING THE DESIGN CHARACTERISTICS, REMOVE SEDIMENT.

STRUCTURE	CONDITION / SEDIMENT DEPTH
DIVERSION BERM OUTFALL 1	Good condition / minimal sediment
DIVERSION BERM OUTFALL 2	
DIVERSION BERM OUTFALL 3	
DIVERSION BERM OUTFALL 4	
DIVERSION BERM OUTFALL 5	
DIVERSION BERM OUTFALL 6	
DIVERSION BERM OUTFALL 7	Fair condition / End of berm has slumped into EPC.
WEST PERIMETER CHANNEL OUTFALL	Good condition / minimal sediment
EAST PERIMETER CHANNEL OUTFALL	
FRENCH DRAIN OUTFALL (SID)	

OTHER DEFICIENCIES?

None.

MAINTENANCE REQUIRED / COMMENTS/PHOTO LOG

End of Berm #7 will be repaired during perimeter channel upgrade project.

"RUN-ON" CONTROL

AREA	ADVERSELY AFFECTING OLF?		
NORTH OF THE ORIGINAL LANDFILL	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	COMMENT: —
WEST OF THE WEST PERIMETER CHANNEL	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	COMMENT: —
EAST OF THE EAST PERIMETER CHANNEL	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	COMMENT: —
NORTH OF WOMAN CREEK	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	COMMENT: —

MAINTENANCE REQUIRED

None.

INSTITUTIONAL CONTROLS

ITEM			
EVIDENCE OF EXCAVATION(S) OF COVER AND IMMEDIATE VICINITY OF COVER?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	COMMENT: —
EVIDENCE OF CONSTRUCTION OF ROADS, TRAILS ON COVER OR BUILDINGS?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	COMMENT: —
EVIDENCE OF UNAUTHORIZED ENTRY?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	COMMENT: —
EVIDENCE OF DRILLING OF WELLS OR USE OF GROUNDWATER?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	COMMENT: —
DAMAGE OR REMOVAL OF ANY SIGNAGE OR GROUNDWATER MONITORING WELLS?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	COMMENT: —

OTHER DEFICIENCIES/PHOTO LOG

None

ACTION ITEMS

DEFICIENCY	DATE NOTED	ACTION	DATE COMPLETED	COMMENTS
		2m		

INSPECTOR SIGNATURE: B. A. m. J. DATE: 8/25/08

REVIEWER SIGNATURE: George Egnall DATE: 8-27-08

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PRESENT LANDFILL – MONITORING AND MAINTENANCE PROGRAM

INSPECTION FORM

INSPECTOR: J. McLaughlin DATE: 8/25/08 TIME: 0930 REVIEWED BY: B. Scall

TEMPERATURE: 78°F WEATHER CONDITIONS: Sunny + clear REVIEW DATE: 8-27-08

METEOROLOGICAL STATION LOCATION: NREL Wind Site

SUBSIDENCE/CONSOLIDATION

REGION	EVIDENCE OF CRACKS?	EVIDENCE OF DEPRESSIONS?	EVIDENCE OF SINK HOLES?	EVIDENCE OF PONDING?	OTHER (DESCRIBE BELOW)
TOP OF COVER – WEST	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—			
TOP OF COVER – EAST	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—			
COVER SIDESLOPE – NORTH	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—			
COVER SIDESLOPE – SOUTH	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—			
EAST FACE SLOPE – NORTH	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—			
EAST FACE SLOPE – SOUTH	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—			
EAST FACE SLOPE – CENTRAL	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—			
EAST FACE SLOPE – NORTH SEEP*	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—			

Settlement Plates and side-slope monitoring points to be inspected for integrity.
During Year 1, they will be surveyed quarterly, and annually thereafter

Integrity intact?
 Yes No

MAINTENANCE REQUIRED/COMMENTS/PHOTO LOG

None.

* AREA OF SEEP IS OUTSIDE OF LANDFILL COVER AND EAST OF THE COVER ANCHOR TRENCH

SLOPE STABILITY

REGION	EVIDENCE OF CRACKS?	EVIDENCE OF BLOCK OR CIRCULAR FAILURE?	EVIDENCE OF SEEPS?	OTHER (DESCRIBE BELOW)
COVER SIDESLOPE – NORTH	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—
COVER SIDESLOPE – SOUTH	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—
PERIMETER CHANNEL OUTER SLOPE – NORTH	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—
PERIMETER CHANNEL OUTER SLOPE – SOUTH	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—
EAST FACE SLOPE – NORTH	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—
EAST FACE SLOPE – SOUTH	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—
EAST FACE SLOPE – CENTRAL	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—
EAST FACE SLOPE – NORTH SEEP*	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	—

MAINTENANCE REQUIRED/COMMENTS/PHOTO LOG

Seep area was dry.

* AREA OF SEEP IS OUTSIDE OF LANDFILL COVER AND EAST OF THE COVER ANCHOR TRENCH

SOIL COVER

REGION	EVIDENCE OF SOIL DEPOSITION OR EROSION?	EVIDENCE OF EROSION RILLS/GULLIES?	EVIDENCE OF BURROWING ANIMALS?	OTHER (DESCRIBE BELOW)
TOP OF COVER - WEST	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—
TOP OF COVER - EAST	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—
COVER SIDESLOPE - NORTH	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—
COVER SIDESLOPE - SOUTH	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—
EAST FACE SLOPE - NORTH	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—
EAST FACE SLOPE - SOUTH	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—
EAST FACE SLOPE - CENTRAL	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—
AREA WHERE EAST SLOPE CENTRAL MEETS EAST SLOPE NORTH	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—
AREA WHERE EAST SLOPE CENTRAL MEETS EAST SLOPE SOUTH	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—
	VENT CAPS IN PLACE & SECURE?	STANDPIPES IN GOOD CONDITION?	BIRDS OR INSECTS IN VENT CAPS?	
COVER - BAROMETRIC VENTS	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—

MAINTENANCE REQUIRED/COMMENTS/PHOTO LOG

Note:

PLF Vegetation Survey

8/18/08

Jody Nels

VEGETATION

REGION	CONDITION OF GRASS	UNWANTED VEGETATION PRESENT?	OTHER (DESCRIBE BELOW)
TOP OF COVER - WEST	good	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	LIDAI, BRTEI, VETHI
TOP OF COVER - EAST	Moderate to good	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	CEDII, LIDAI
EAST FACE SLOPE - NORTH	None to moderate	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	CEDII, CIARI
EAST FACE SLOPE - SOUTH	None to moderate	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	LIDAI, CIARI, CEDII, HYPEI
EAST FACE SLOPE - CENTRAL	None to moderate	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	SAGXI, HYPEI, CIARI, SAAMI
COVER SIDESLOPE - NORTH	Moderate to good	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	CEDII
COVER SIDESLOPE - SOUTH	Sparse to good	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	VETHI
VEGETATION-LINED PERIMETER CHANNEL - NORTH	Sparse to moderate	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	VETHI
VEGETATION-LINED PERIMETER CHANNEL - SOUTH	Sparse to good	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	CEDII

* Unwanted vegetation includes weeds and deep-rooting trees.

MAINTENANCE REQUIRED/COMMENTS/PHOTO LOG

E Face of PLF sprayed - June 2008. Also top central N-S strip of PLF cover sprayed.
So few weeds present on PLF this year. Looks very good.

JNF 8/18/08

SEEP TREATMENT SYSTEM

REGION	EVIDENCE OF PLUGGING, OBSTRUCTIONS, OR EXCESS DEBRIS?	EVIDENCE OF CRACKS OR DETERIORATION?	OTHER (DESCRIBE BELOW)
GWIS INLET PIPES	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	-
STRIP DRAIN INLET PIPE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	-
NORTH MANHOLE OUTLET PIPE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	-
SOUTH MANHOLE OUTLET PIPE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	-
TREATMENT UNIT	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	-
TREATMENT UNIT OUTLET PIPE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	-
NORTH MANHOLE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	cracks in cement around manhole
SOUTH MANHOLE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	cracks in cement around manhole
TREATMENT UNIT GRATING	NA	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	-

MAINTENANCE REQUIRED/COMMENTS/PHOTO LOG

Cement around manholes will be repaired by Site staff.

STORMWATER MANAGEMENT STRUCTURES

CHANNELS/LINING

STRUCTURE	EVIDENCE OF EXCESSIVE EROSION, GULLYING, SCOUR, OR UNDERMINING?	EVIDENCE OF SETTLEMENT/ SUBSIDENCE OR DEPRESSIONS?	EVIDENCE OF BREACHING OR BANK FAILURE?	EVIDENCE OF BURROWING ANIMALS?	EVIDENCE OF SEDIMENT BUILD-UP OR OTHER BLOCKAGE?	EVIDENCE OF LINING DETERIORATION, HOLES, RIPS, OR SEPARATION?	EVIDENCE OF LINING DISPLACEMENT?
DIVERSION BERM	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
VEGETATION-LINED PERIMETER CHANNEL – NORTH	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
VEGETATION-LINED PERIMETER CHANNEL – SOUTH	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
RIPRAP-LINED PERIMETER CHANNEL	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
C350-LINED EAST FACE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
EAST FACE RIPRAP CHANNEL – NORTH	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
EAST FACE RIPRAP CHANNEL – SOUTH	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						

OTHER DEFICIENCIES?

None

MAINTENANCE REQUIRED/COMMENTS/PHOTO LOG

None

STORMWATER MANAGEMENT STRUCTURES (CONTINUED)

OUTFALLS

CHECK EACH STRUCTURE FOR EXCESSIVE EROSION AND SEDIMENT DEPTH. IF SEDIMENT DEPTH IS COMPROMISING THE DESIGN CHARACTERISTICS, REMOVE SEDIMENT.

STRUCTURE	CONDITION/SEDIMENT DEPTH
DIVERSION BERM OUTFALL – NORTH	Good condition / No sediment
DIVERSION BERM OUTFALL – SOUTH	
CULVERT 1 OUTFALL	
CULVERT 2 OUTFALL	.
SOUTHWEST CULVERT OUTFALL	

CULVERTS

CHECK EACH STRUCTURE FOR BLOCKAGE, SURROUNDING CONDITIONS, BREACHING, SEDIMENT BUILD-UP, AND INLET/OUTLET CONDITIONS.

STRUCTURE	CONDITION
CULVERT 1	Good condition / No sediment
CULVERT 2	
SOUTHWEST CULVERT	

MAINTENANCE REQUIRED/PHOTO LOG

None.

"RUN-ON" EROSION CONTROL

AREA	ADVERSELY AFFECTING PLF?		
RUN-ON INTO PERIMETER CHANNEL – NORTH	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	COMMENT: —
RUN-ON INTO PERIMETER CHANNEL – SOUTH	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	COMMENT: —
NATURAL DRAINAGE FED BY CULVERT 1	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	COMMENT: —
NATURAL DRAINAGE FED BY NORTHEAST PERIMETER CHANNEL	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	COMMENT: —
NATURAL DRAINAGE FED BY RIPRAP	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	COMMENT: —

MAINTENANCE REQUIRED/PHOTO LOG

None.

INSTITUTIONAL CONTROLS

ITEM

EVIDENCE OF EXCAVATION(S) OF COVER AND IMMEDIATE VICINITY OF COVER?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	COMMENT:	—
EVIDENCE OF CONSTRUCTION OF ROADS OR TRAILS ON COVER OR BUILDINGS?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	COMMENT:	—
EVIDENCE OF UNAUTHORIZED ENTRY?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	COMMENT:	—
EVIDENCE OF DRILLING OF WELLS OR USE OF GROUNDWATER?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	COMMENT:	—
DISRUPTION OR DAMAGE OF SEEP TREATMENT SYSTEM?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	COMMENT:	—
DAMAGE OR REMOVAL OF ANY SIGNAGE OR GROUNDWATER MONITORING WELLS?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	COMMENT:	—

OTHER DEFICIENCIES/PHOTO LOG

None

ACTION ITEMS

DEFICIENCY	DATE NOTED	ACTION	DATE COMPLETED	COMMENTS

INSPECTOR SIGNATURE: G. A. Smith DATE: 8/25/08

REVIEWER SIGNATURE: J. P. Smiti DATE: 8-27-08

ORIGINAL LANDFILL - MONITORING AND MAINTENANCE PROGRAM

INSPECTION FORM

INSPECTOR: J. McLaughlin

DATE: 9/20/08 TIME: 0900 REVIEWED BY: Joe Syrett

TEMPERATURE: 70 °F

WEATHER CONDITIONS: Sunny

REVIEW DATE:

4-30-08 10/1/08 OSS

METEOROLOGICAL STATION LOCATION: NREL Wind Site

SUBSIDENCE / CONSOLIDATION

REGION	EVIDENCE OF CRACKS?	EVIDENCE OF DEPRESSIONS?	EVIDENCE OF SINK HOLES?	EVIDENCE OF PONDING?	OTHER (DESCRIBE BELOW)
COVER - WEST	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	WPC Slump
COVER - EAST	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Berm 4 depression Berm 7 crack
BUTTRESS FILL	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—			
DIVERSION BERM 1	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—			
DIVERSION BERM 2	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—			
DIVERSION BERM 3	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—			
DIVERSION BERM 4	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—			
DIVERSION BERM 5	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—			
DIVERSION BERM 6	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	—			
DIVERSION BERM 7	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Berm 7 crack

Settlement Plates on Top of cover to be inspected for integrity.
During Year 1, they will be surveyed quarterly, and annually thereafter.

Integrity intact?
 Yes No

MAINTENANCE REQUIRED / COMMENTS/PHOTO LOG

The depressions in the berms were fixed during the OLF Re-Grade Project completed September 22. Remaining cracks & depressions in the perimeter channels will be repaired during the Perimeter Channel Re-Grade Project scheduled to be completed by December 2008.

SLOPE STABILITY

REGION	EVIDENCE OF SEEPS?		EVIDENCE OF BLOCK OR CIRCULAR FAILURE?	EVIDENCE OF SEEPS?	OTHER? (DESCRIBE BELOW)
	CREEKS	NO CREEKS			
COVER - WEST	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	-
COVER - EAST	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	-
BUTTRESS FILL SIDESLOPE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	-
WEST PERIMETER CHANNEL SIDESLOPES	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	-
EAST PERIMETER CHANNEL SIDESLOPES	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	-
COVER SEEPS (IF PRESENT)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	-
				<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No	

MAINTENANCE REQUIRED / COMMENTS/PHOTO LOG

The drain extension for Seep #7 was completed on September 10th. The area remains dry. The vegetation in berm #3 below Seep #4 has been cleared. Seep #4 continues to flow at ~1 gpm. Seep #8 continues to flow at ~2 gpm. The EPC and WPC will be repaired during the Perimeter Channel Re-grade Project.

SOIL COVER

REGION	EVIDENCE OF SOIL DEPOSITION OR EROSION?	EVIDENCE OF EROSION RILLS/GULLIES?	EVIDENCE OF BURROWING ANIMALS?	OTHER (DESCRIBE BELOW)
COVER - WEST	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	-
COVER - EAST	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	-
BUTTRESS FILL	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	-
BUTTRESS FILL SIDESLOPE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	-

MAINTENANCE REQUIRED / COMMENTS/PHOTO LOG

None.

Quarterly vegetation survey was completed in August.

VEGETATION

REGION	CONDITION OF GRASS	UNWANTED VEGETATION PRESENT*?	PERCENTAGE OF GRASS VERSUS BARE GROUND?	PERCENTAGE OF UNWANTED VEGETATION?
COVER- WEST		<input type="checkbox"/> Yes <input type="checkbox"/> No		
COVER - EAST		<input type="checkbox"/> Yes <input type="checkbox"/> No		
DIVERSION BERM 1		<input type="checkbox"/> Yes <input type="checkbox"/> No		
DIVERSION BERM 2		<input type="checkbox"/> Yes <input type="checkbox"/> No		
DIVERSION BERM 3		<input type="checkbox"/> Yes <input type="checkbox"/> No		
DIVERSION BERM 4		<input type="checkbox"/> Yes <input type="checkbox"/> No		
DIVERSION BERM 5		<input type="checkbox"/> Yes <input type="checkbox"/> No		
DIVERSION BERM 6		<input type="checkbox"/> Yes <input type="checkbox"/> No		
DIVERSION BERM 7		<input type="checkbox"/> Yes <input type="checkbox"/> No		
WEST PERIMETER CHANNEL		<input type="checkbox"/> Yes <input type="checkbox"/> No		
EAST PERIMETER CHANNEL		<input type="checkbox"/> Yes <input type="checkbox"/> No		
UPPER BUTTERESS FILL SIDESLOPE		<input type="checkbox"/> Yes <input type="checkbox"/> No		
LOWER BUTTRESS FILL SIDESLOPE		<input type="checkbox"/> Yes <input type="checkbox"/> No		

* Unwanted vegetation includes weeds and deep-rooting trees.

MAINTENANCE REQUIRED / COMMENTS/PHOTO LOG

STORMWATER MANAGEMENT STRUCTURES

CHANNELS / LINING

STRUCTURE	EVIDENCE OF EXCESSIVE EROSION, GULLYING, SCOUR, OR UNDERMINING?	EVIDENCE OF SETTLEMENT/ SUBSIDENCE OR DEPRESSIONS?	EVIDENCE OF BREACHING OR BANK FAILURE?	EVIDENCE OF BURROWING ANIMALS?	EVIDENCE OF SEDIMENT BUILD-UP OR OTHER BLOCKAGE?	EVIDENCE OF LINING DETERIORATION, HOLES, RIPS, OR SEPARATION?	EVIDENCE OF LINING DISPLACEMENT?
DIVERSION BERM 1	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
DIVERSION BERM 2	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
DIVERSION BERM 3	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
DIVERSION BERM 4	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
DIVERSION BERM 5	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
DIVERSION BERM 6	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
DIVERSION BERM 7	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
CHECK DAMS	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
WEST PERIMETER CHANNEL	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
EAST PERIMETER CHANNEL	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

OTHER DEFICIENCIES?

None

MAINTENANCE REQUIRED / COMMENTS/PHOTO LOG

Perimeter channels will be repaired in December 2008.

STORMWATER MANAGEMENT STRUCTURES (CONTINUED)

OUTFALLS

CHECK EACH STRUCTURE FOR EXCESSIVE EROSION AND SEDIMENT DEPTH. IF SEDIMENT DEPTH IS COMPROMISING THE DESIGN CHARACTERISTICS, REMOVE SEDIMENT.

STRUCTURE
DIVERSION BERM OUTFALL 1
DIVERSION BERM OUTFALL 2
DIVERSION BERM OUTFALL 3
DIVERSION BERM OUTFALL 4
DIVERSION BERM OUTFALL 5
DIVERSION BERM OUTFALL 6
DIVERSION BERM OUTFALL 7
WEST PERIMETER CHANNEL OUTFALL
EAST PERIMETER CHANNEL OUTFALL
FRENCH DRAIN OUTFALL (SID)

CONDITION / SEDIMENT DEPTH

Good condition / minimal sediment



Fair condition / minimal sediment



Good condition / minimal sediment

OTHER DEFICIENCIES?

None.

MAINTENANCE REQUIRED / COMMENTS/PHOTO LOG

End of berm #7 will be repaired during perimeter channel re-grade project.

"RUN-ON" CONTROL

AREA	ADVERSELY AFFECTING OLF?		
NORTH OF THE ORIGINAL LANDFILL	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	COMMENT: —
WEST OF THE WEST PERIMETER CHANNEL	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	COMMENT: —
EAST OF THE EAST PERIMETER CHANNEL	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	COMMENT: —
NORTH OF WOMAN CREEK	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	COMMENT: —

MAINTENANCE REQUIRED

None.

INSTITUTIONAL CONTROLS

ITEM	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	COMMENT:
EVIDENCE OF EXCAVATION(S) OF COVER AND IMMEDIATE VICINITY OF COVER?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	COMMENT: Berm re-grades and Seed #7 extension
EVIDENCE OF CONSTRUCTION OF ROADS, TRAILS ON COVER OR BUILDINGS?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	COMMENT: Access routes for Berm Re-Grade Project.
EVIDENCE OF UNAUTHORIZED ENTRY?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	COMMENT: -
EVIDENCE OF DRILLING OF WELLS OR USE OF GROUNDWATER?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	COMMENT: -
DAMAGE OR REMOVAL OF ANY SIGNAGE OR GROUNDWATER MONITORING WELLS?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	COMMENT: -

OTHER DEFICIENCIES/PHOTO LOG

None. All disturbed areas of the OLF were re-vegetated and had erosion controls added.

ACTION ITEMS

DEFICIENCY	DATE NOTED	ACTION	DATE COMPLETED	COMMENTS
-	-	Settlement Movement Surveys	9/11/08	Quarterly Survey
Site received ~2" rain	9/15/08	Inspect OLF	9/15/08	No problems encountered
		Scop #7 drain extension	9/10/08	-
		OLF Barn ReGrade Project	9/22/08	-

INSPECTOR SIGNATURE:

DATE: 10/1/08

REVIEWER SIGNATURE:

DATE: 10/1/08

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Rocky Flats Site
Original Landfill - Settlement Plates Monitoring
Quarterly Survey September 11, 2008 Comparison to Previous Survey June 26, 2008

09-11-08 OBSERVATIONS					DELTA			06-26-08 OBSERVATIONS				
POINT NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	NORTHING	EASTING	ELEVATION	POINT NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
14705	747913.6943	2082233.072	6005.882	PIPE AA N-RIM	0.00	0.00	0.01	55001	747913.6973	2082233.071	6005.89	PIPE AA N-RIM
14706	747644.9497	2081851.171	5975.324	PIPE BB N-RIM	0.01	0.02	0.00	55000	747644.9557	2081851.187	5975.33	PIPE BB N-RIM
14700	747883.4076	2081666.1	6019.606	PIPE CC N-RIM	0.00	0.00	0.00	55002	747883.4056	2081666.098	6019.61	PIPE CC N-RIM
14701	747803.5141	2081642.34	6006.1	PIPE DD N-RIM	0.00	0.01	0.00	55003	747803.5121	2081642.348	6006.10	PIPE DD N-RIM
14702	747700.8151	2081620.511	5988.51	PIPE EE N-RIM	0.00	0.00	-0.01	55004	747700.8171	2081620.508	5988.51	PIPE EE N-RIM
14704	747704.6721	2081406.749	5997.163	PIPE FF N-RIM	0.00	0.01	0.01	55006	747704.6721	2081406.763	5997.17	PIPE FF N-RIM
14703	747563.1006	2081656.296	5974.184	PIPE GG N-RIM	0.01	0.01	-0.01	55005	747563.1106	2081656.306	5974.18	PIPE GG N-RIM

DELTAS ARE CALCULATED AS THE DIFFERENCE BETWEEN THE 06-26-08 OBSERVATION AND THE 09-11-08 OBSERVATION

POINTS ARE GRID BASED COLORADO STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, NAD 27, NGVD 29
 GRID TO GROUND SCALE FACTOR AS PROVIDED BY RFETS DURING SITE CLOSURE IS 1.0002839489
 GROUND TO GRID SCALE FACTOR AS PROVIDED BY RFETS DURING SITE CLOSURE IS 0.9997161317

Rocky Flats Site
Original Landfill - Settlement Plates Monitoring
Quarterly Survey September 11, 2008 Comparison to Base Survey March 06, 2008

09-11-08 OBSERVATIONS

POINT NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
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14705	747913.6943	2082233.072	6005.882	PIPE AA N-RIM
14706	747644.9497	2081851.171	5975.324	PIPE BB N-RIM
14700	747883.4076	2081666.1	6019.606	PIPE CC N-RIM
14701	747803.5141	2081642.34	6006.1	PIPE DD N-RIM
14702	747700.8151	2081620.511	5988.51	PIPE EE N-RIM
14704	747704.6721	2081406.749	5997.163	PIPE FF N-RIM
14703	747563.1006	2081656.296	5974.184	PIPE GG N-RIM

DELTA
NORTHING **DELTA**
EASTING **DELTA**
ELEVATION

POINT NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
70002	747913.6632	2082233.0456	6005.96	PIPE AA N.RIM
70003	747644.9400	2081851.1200	5975.42	PIPE BB N.RIM
70004	747883.4870	2081666.0909	6019.63	PIPE CC N.RIM
70005	747803.5465	2081642.2892	6006.14	PIPE DD N.RIM
70006	747700.8676	2081620.4622	5988.53	PIPE EE N.RIM (NO LID)
70007	747704.7447	2081406.6865	5997.20	PIPE FF N.RIM

06-21-07 OBSERVATIONS

POINT NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
--------------	----------	---------	-----------	-------------

70002	747913.6632	2082233.0456	6005.96	PIPE AA N.RIM
70003	747644.9400	2081851.1200	5975.42	PIPE BB N.RIM
70004	747883.4870	2081666.0909	6019.63	PIPE CC N.RIM
70005	747803.5465	2081642.2892	6006.14	PIPE DD N.RIM
70006	747700.8676	2081620.4622	5988.53	PIPE EE N.RIM (NO LID)
70007	747704.7447	2081406.6865	5997.20	PIPE FF N.RIM

PIPE GG OBSERVED FOR THE FIRST TIME ON 08-21-07 (NO COMPARISON TO BASE)

DELTAS ARE CALCULATED AS THE DIFFERENCE BETWEEN THE 06-21-07 OBSERVATION AND THE 09-11-08 OBSERVATION

POINTS ARE GRID BASED COLORADO STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, NAD 27, NGVD 29

GRID TO GROUND SCALE FACTOR AS PROVIDED BY RFETS DURING SITE CLOSURE IS 1.0002839489

GROUND TO GRID SCALE FACTOR AS PROVIDED BY RFETS DURING SITE CLOSURE IS 0.9997161317

Appendix B

Analytical Results for Water Samples—Third Quarter CY 2008

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Appendix B1

Analytical Results for Water Samples - Third Quarter CY 2008

LOCATION_CODE	LOCATION_TYPE	DATE_SAMPLED	LAB REQUISITION NUMBER	CAS	ANALYTE	SAMPLE_ID	RESULT	UNITS	LAB QUALIFIERS	SAMPLE TYPE	DETECTION LIMIT	UNCER-TAINTY	DATA VALIDATION QUALIFIERS
GS59	SL	7/8/2008	08071718	79-01-6	Trichloroethene	N001	0.2	ug/L	U	F	0.2		valid
GS59	SL	7/8/2008	08071718	75-01-4	Vinyl chloride	N001	0.11	ug/L	U	F	0.11		valid
GS59	SL	7/21/2008	08081791	7440-38-2	Arsenic	N001	5	ug/L	U	F	0.005		J
GS59	SL	7/21/2008	08081791	7440-41-7	Beryllium	N001	1	ug/L	U	F	0.001		valid
GS59	SL	7/21/2008	08081791	7440-42-8	Boron	N001	22.5	ug/L	B	F	0.01		valid
GS59	SL	7/21/2008	08081791	7440-43-9	Cadmium	0001	1	ug/L	U	F	0.001		valid
GS59	SL	7/21/2008	08081791	7440-47-3	Chromium	N001	3.2	ug/L	B	F	0.002		valid
GS59	SL	7/21/2008	08081791	7440-50-8	Copper	0001	3	ug/L	U	F	0.003		valid
GS59	SL	7/21/2008	08081791	7439-92-1	Lead	0001	2.5	ug/L	U	F	0.0025		valid
GS59	SL	7/21/2008	08081791	7439-97-6	Mercury	N001	0.03	ug/L	U	F	0.00003		valid
GS59	SL	7/21/2008	08081791	7440-02-0	Nickel	0001	1	ug/L	U	F	0.001		valid
GS59	SL	7/21/2008	08081791	7782-49-2	Selenium	N001	5	ug/L	U	F	0.005		valid
GS59	SL	7/21/2008	08081791	7440-22-4	Silver	0001	1	ug/L	U	F	0.001		valid
GS59	SL	7/21/2008	08081791	U-234	Uranium-234	N001	0.694	pCi/L		F	0.332	0.203	J
GS59	SL	7/21/2008	08081791	U-235+236	Uranium-235/236	N001	0.0635	pCi/L	U	F	0.195	0.0627	valid
GS59	SL	7/21/2008	08081791	U-238	Uranium-238	N001	0.321	pCi/L		F	0.177	0.131	J
GS59	SL	7/21/2008	08081791	7440-66-6	Zinc	0001	2.3	ug/L	B	F	0.002		valid
GS59	SL	8/16/2008	08091842	7440-38-2	Arsenic	N001	17.3	ug/L	B	F	0.005		valid
GS59	SL	8/16/2008	08091842	7440-41-7	Beryllium	N001	1	ug/L	U	F	0.001		valid
GS59	SL	8/16/2008	08091842	7440-42-8	Boron	N001	18.6	ug/L	B	F	0.01		valid
GS59	SL	8/16/2008	08091842	7440-43-9	Cadmium	0001	1	ug/L	U	F	0.001		valid
GS59	SL	8/16/2008	08091842	7440-47-3	Chromium	N001	2	ug/L	U	F	0.002		valid
GS59	SL	8/16/2008	08091842	7440-50-8	Copper	0001	3	ug/L	U	F	0.003		valid
GS59	SL	8/16/2008	08091842	7439-92-1	Lead	0001	2.5	ug/L	U	F	0.0025		valid
GS59	SL	8/16/2008	08091842	7439-97-6	Mercury	N001	0.03	ug/L	U	F	0.00003		J
GS59	SL	8/16/2008	08091842	7440-02-0	Nickel	0001	1	ug/L	U	F	0.001		valid
GS59	SL	8/16/2008	08091842	7782-49-2	Selenium	N001	5	ug/L	U	F	0.005		valid
GS59	SL	8/16/2008	08091842	7440-22-4	Silver	0001	1	ug/L	U	F	0.001		valid
GS59	SL	8/16/2008	08091842	U-234	Uranium-234	N001	0.271	pCi/L	U	F	0.464	0.157	valid
GS59	SL	8/16/2008	08091842	U-235+236	Uranium-235/236	N001	0.0446	pCi/L	U	F	0.259	0.062	valid
GS59	SL	8/16/2008	08091842	U-238	Uranium-238	N001	0.198	pCi/L	U	F	0.255	0.129	valid
GS59	SL	8/16/2008	08091842	7440-66-6	Zinc	0001	6.9	ug/L	B	F	0.002		U
GS59	SL	9/12/2008	08101866	7440-38-2	Arsenic	N001	15.7	ug/L	B	F	0.005		valid
GS59	SL	9/12/2008	08101866	7440-41-7	Beryllium	N001	1	ug/L	U	F	0.001		valid
GS59	SL	9/12/2008	08101866	7440-42-8	Boron	N001	19.4	ug/L	B	F	0.01		valid
GS59	SL	9/12/2008	08101866	7440-43-9	Cadmium	0001	1	ug/L	U	F	0.001		valid
GS59	SL	9/12/2008	08101866	7440-47-3	Chromium	N001	2	ug/L	U	F	0.002		valid
GS59	SL	9/12/2008	08101866	7440-50-8	Copper	0001	3	ug/L	U	F	0.003		valid
GS59	SL	9/12/2008	08101866	7439-92-1	Lead	0001	2.5	ug/L	U	F	0.0025		valid
GS59	SL	9/12/2008	08101866	7439-97-6	Mercury	N001	0.03	ug/L	U	F	0.00003		J
GS59	SL	9/12/2008	08101866	7440-02-0	Nickel	0001	1.7	ug/L	B	F	0.001		valid
GS59	SL	9/12/2008	08101866	7782-49-2	Selenium	N001	5	ug/L	U	F	0.005		valid
GS59	SL	9/12/2008	08101866	7440-22-4	Silver	0001	1	ug/L	U	F	0.001		valid
GS59	SL	9/12/2008	08101866	U-234	Uranium-234	N001	0.185	pCi/L	U	F	0.3	0.117	valid
GS59	SL	9/12/2008	08101866	U-235+236	Uranium-235/236	N001	0.115	pCi/L	U	F	0.165	0.0896	valid
GS59	SL	9/12/2008	08101866	U-238	Uranium-238	N001	0.185	pCi/L		F	0.172	0.103	J
GS59	SL	9/12/2008	08101866	7440-66-6	Zinc	0001	4.6	ug/L	B	F	0.002		valid
P416589	WL	8/13/2008	08081781	71-55-6	1,1,1-Trichloroethane	N001	0.16	ug/L	U	F	0.16		valid
P416589	WL	8/13/2008	08081781	79-34-5	1,1,2,2-Tetrachloroethane	N001	0.2	ug/L	U	F	0.2		valid
P416589	WL	8/13/2008	08081781	79-00-5	1,1,2-Trichloroethane	N001	0.32	ug/L	U	F	0.32		valid
P416589	WL	8/13/2008	08081781	75-35-4	1,1-Dichloroethene	N001	0.14	ug/L	U	F	0.14		valid
P416589	WL	8/13/2008	08081781	120-82-1	1,2,4-Trichlorobenzene	N001	0.28	ug/L	U	F	0.28		valid
P416589	WL	8/13/2008	08081781	96-12-8	1,2-Dibromo-3-chloropropane	N001	0.43	ug/L	U	F	0.43		valid
P416589	WL	8/13/2008	08081781	106-93-4	1,2-Dibromoethane	N001	0.18	ug/L	U	F	0.18		valid
P416589	WL	8/13/2008	08081781	95-50-1	1,2-Dichlorobenzene	N001	0.13	ug/L	U	F	0.13		valid

Appendix B1

Analytical Results for Water Samples - Third Quarter CY 2008

LOCATION_CODE	LOCATION_TYPE	DATE_SAMPLED	LAB REQUISITION NUMBER	CAS	ANALYTE	SAMPLE_ID	RESULT	UNITS	LAB QUALIFIERS	SAMPLE_TYPE	DETECTION LIMIT	UNCER-TAINITY	DATA VALIDATION QUALIFIERS
P416589	WL	8/13/2008	08081781	107-06-2	1,2-Dichloroethane	N001	0.13	ug/L	U	F	0.13		valid
P416589	WL	8/13/2008	08081781	78-87-5	1,2-Dichloropropane	N001	0.13	ug/L	U	F	0.13		valid
P416589	WL	8/13/2008	08081781	541-73-1	1,3-Dichlorobenzene	N001	0.16	ug/L	U	F	0.16		valid
P416589	WL	8/13/2008	08081781	106-46-7	1,4-Dichlorobenzene	N001	0.16	ug/L	U	F	0.16		valid
P416589	WL	8/13/2008	08081781	105-67-9	2, 4-Dimethylphenol	N001	0.58	ug/L	U	F	0.58		valid
P416589	WL	8/13/2008	08081781	95-95-4	2,4,5-Trichlorophenol	N001	0.45	ug/L	U	F	0.45		valid
P416589	WL	8/13/2008	08081781	88-06-2	2,4,6-Trichlorophenol	N001	0.29	ug/L	U	F	0.29		valid
P416589	WL	8/13/2008	08081781	120-83-2	2,4-Dichlorophenol	N001	0.64	ug/L	U	F	0.64		valid
P416589	WL	8/13/2008	08081781	51-28-5	2,4-Dinitrophenol	N001	10	ug/L	U	F	10		valid
P416589	WL	8/13/2008	08081781	121-14-2	2,4-Dinitrotoluene	N001	0.22	ug/L	U	F	0.22		valid
P416589	WL	8/13/2008	08081781	606-20-2	2,6-Dinitrotoluene	N001	0.32	ug/L	U	F	0.32		valid
P416589	WL	8/13/2008	08081781	91-58-7	2-Chloronaphthalene	N001	0.26	ug/L	U	F	0.26		valid
P416589	WL	8/13/2008	08081781	95-57-8	2-Chlorophenol	N001	2	ug/L	U	F	2		valid
P416589	WL	8/13/2008	08081781	91-94-1	3,3'-Dichlorobenzidine	N001	2	ug/L	U	F	2		valid
P416589	WL	8/13/2008	08081781	534-52-1	4,6-Dinitro-2-methyl phenol	N001	4	ug/L	U	F	4		valid
P416589	WL	8/13/2008	08081781	59-50-7	4-Chloro-3-methylphenol	N001	0.9	ug/L	U	F	0.9		valid
P416589	WL	8/13/2008	08081781	100-02-7	4-Nitrophenol	N001	1.2	ug/L	U	F	1.2		valid
P416589	WL	8/13/2008	08081781	83-32-9	Acenaphthene	N001	0.28	ug/L	U	F	0.28		valid
P416589	WL	8/13/2008	08081781	120-12-7	Anthracene	N001	0.42	ug/L	U	F	0.42		valid
P416589	WL	8/13/2008	08081781	56-55-3	Benz(a)anthracene	N001	0.35	ug/L	U	F	0.35		valid
P416589	WL	8/13/2008	08081781	71-43-2	Benzene	N001	0.16	ug/L	U	F	0.16		valid
P416589	WL	8/13/2008	08081781	50-32-8	Benz(a)pyrene	N001	0.31	ug/L	U	F	0.31		valid
P416589	WL	8/13/2008	08081781	205-99-2	Benz(b)fluoranthene	N001	0.53	ug/L	U	F	0.53		valid
P416589	WL	8/13/2008	08081781	191-24-2	Benz(g,h,i)Perylene	N001	0.5	ug/L	U	F	0.5		valid
P416589	WL	8/13/2008	08081781	207-08-9	Benz(k)fluoranthene	N001	0.46	ug/L	U	F	0.46		valid
P416589	WL	8/13/2008	08081781	111-44-4	Bis(2-chloroethyl) ether	N001	0.41	ug/L	U	F	0.41		valid
P416589	WL	8/13/2008	08081781	108-60-1	Bis(2-chloroisopropyl) ether	N001	0.28	ug/L	U	F	0.28		valid
P416589	WL	8/13/2008	08081781	117-81-7	Bis(2-ethylhexyl) phthalate	N001	2.3	ug/L	J	F	0.56		valid
P416589	WL	8/13/2008	08081781	75-27-4	Bromodichloromethane	N001	0.17	ug/L	U	F	0.17		valid
P416589	WL	8/13/2008	08081781	75-25-2	Bromoform	N001	0.19	ug/L	U	F	0.19		valid
P416589	WL	8/13/2008	08081781	74-83-9	Bromomethane	N001	0.21	ug/L	U	F	0.21		valid
P416589	WL	8/13/2008	08081781	85-68-7	Butyl benzyl phthalate	N001	1	ug/L	U	F	1		valid
P416589	WL	8/13/2008	08081781	7440-43-9	Cadmium	N001	0.82	ug/L	B	F	0.00045		valid
P416589	WL	8/13/2008	08081781	56-23-5	Carbon tetrachloride	N001	0.19	ug/L	U	F	0.19		valid
P416589	WL	8/13/2008	08081781	108-90-7	Chlorobenzene	N001	0.17	ug/L	U	F	0.17		valid
P416589	WL	8/13/2008	08081781	124-48-1	Chlorodibromomethane	N001	0.17	ug/L	U	F	0.17		valid
P416589	WL	8/13/2008	08081781	67-66-3	Chloroform	N001	0.16	ug/L	U	F	0.16		valid
P416589	WL	8/13/2008	08081781	74-87-3	Chloromethane	N001	0.3	ug/L	U	F	0.3		valid
P416589	WL	8/13/2008	08081781	218-01-9	Chrysene	N001	0.54	ug/L	U	F	0.54		valid
P416589	WL	8/13/2008	08081781	156-59-2	cis-1,2-Dichloroethene	N001	0.15	ug/L	U	F	0.15		valid
P416589	WL	8/13/2008	08081781	7440-50-8	Copper	N001	1.4	ug/L	U	F	0.0014		valid
P416589	WL	8/13/2008	08081781	53-70-3	Dibenz(a,h)anthracene	N001	0.51	ug/L	U	F	0.51		valid
P416589	WL	8/13/2008	08081781	84-66-2	Diethyl phthalate	N001	0.38	ug/L	U	F	0.38		valid
P416589	WL	8/13/2008	08081781	131-11-3	Dimethyl phthalate	N001	0.21	ug/L	U	F	0.21		valid
P416589	WL	8/13/2008	08081781	84-74-2	Di-n-butyl phthalate	N001	1.2	ug/L	U	F	1.2		valid
P416589	WL	8/13/2008	08081781	100-41-4	Ethylbenzene	N001	0.16	ug/L	U	F	0.16		valid
P416589	WL	8/13/2008	08081781	206-44-0	Fluoranthene	N001	0.2	ug/L	U	F	0.2		valid
P416589	WL	8/13/2008	08081781	86-73-7	Fluorene	N001	0.31	ug/L	U	F	0.31		valid
P416589	WL	8/13/2008	08081781	118-74-1	Hexachlorobenzene	N001	0.66	ug/L	U	F	0.66		valid
P416589	WL	8/13/2008	08081781	87-68-3	Hexachlorobutadiene	N001	0.12	ug/L	U	F	0.12		valid
P416589	WL	8/13/2008	08081781	77-47-4	Hexachlorocyclopentadiene	N001	1.5	ug/L	U	F	1.5		valid
P416589	WL	8/13/2008	08081781	67-72-1	Hexachloroethane	N001	0.46	ug/L	U	F	0.46		valid
P416589	WL	8/13/2008	08081781	193-39-5	Indeno(1,2,3-cd)pyrene	N001	0.65	ug/L	U	F	0.65		valid
P416589	WL	8/13/2008	08081781	78-59-1	Isophorone	N001	0.21	ug/L	U	F	0.21		valid
P416589	WL	8/13/2008	08081781	7439-92-1	Lead	0001	2.6	ug/L	U	F	0.0026		valid

Appendix B1

Analytical Results for Water Samples - Third Quarter CY 2008

LOCATION_CODE	LOCATION_TYPE	DATE_SAMPLED	LAB REQUISITION NUMBER	CAS	ANALYTE	SAMPLE ID	RESULT	UNITS	LAB QUALIFIERS	SAMPLE TYPE	DETECTION LIMIT	UNCER-TAINTY	DATA VALIDATION QUALIFIERS
SW093	SL	8/17/2008	08081814	PU-239,240	Plutonium-239, 240	N001	0.0114	pCi/L	U	F	0.0115	0.00716	valid
SW093	SL	8/17/2008	08081814	7440-22-4	Silver	N001	0.2	ug/L	U	F	0.0002		valid
SW093	SL	8/17/2008	08081814	U-234	Uranium-234	N001	2.1	pCi/L		F	0.433	0.487	valid
SW093	SL	8/17/2008	08081814	U-235+236	Uranium-235/236	N001	0.106	pCi/L	U	F	0.244	0.125	valid
SW093	SL	8/17/2008	08081814	U-238	Uranium-238	N001	1.88	pCi/L		F	0.236	0.454	valid
SW093	SL	8/25/2008	08091842	AM-241	Americium-241	N001	0.0177	pCi/L	U	F	0.0241	0.0166	valid
SW093	SL	8/25/2008	08091842	7440-41-7	Beryllium	N001	1	ug/L	U	F	0.001		valid
SW093	SL	8/25/2008	08091842	7440-43-9	Cadmium	N001	0.16	ug/L	B	F	0.00011		valid
SW093	SL	8/25/2008	08091842	7440-47-3	Chromium	N001	2	ug/L	U	F	0.002		valid
SW093	SL	8/25/2008	08091842	HARDNESS	Hardness	N001	514	mg/L		F	2		valid
SW093	SL	8/25/2008	08091842	PU-239,240	Plutonium-239, 240	N001	0.0631	pCi/L		F	0.0146	0.0178	valid
SW093	SL	8/25/2008	08091842	7440-22-4	Silver	N001	0.2	ug/L	U	F	0.0002		valid
SW093	SL	8/25/2008	08091842	U-234	Uranium-234	N001	5.35	pCi/L		F	0.357	0.796	valid
SW093	SL	8/25/2008	08091842	U-235+236	Uranium-235/236	N001	0.154	pCi/L	U	F	0.197	0.112	valid
SW093	SL	8/25/2008	08091842	U-238	Uranium-238	N001	3.92	pCi/L		F	0.205	0.63	valid
SW093	SL	9/11/2008	08091842	AM-241	Americium-241	N001	0.00668	pCi/L	U	F	0.0241	0.014	valid
SW093	SL	9/11/2008	08091842	7440-41-7	Beryllium	N001	1	ug/L	U	F	0.001		valid
SW093	SL	9/11/2008	08091842	7440-43-9	Cadmium	N001	0.11	ug/L	U	F	0.00011		valid
SW093	SL	9/11/2008	08091842	7440-47-3	Chromium	N001	2	ug/L	U	F	0.002		valid
SW093	SL	9/11/2008	08091842	HARDNESS	Hardness	N001	331	mg/L		F	2		valid
SW093	SL	9/11/2008	08091842	PU-239,240	Plutonium-239, 240	N001	0	pCi/L	U	F	0.0244	0.0102	valid
SW093	SL	9/11/2008	08091842	7440-22-4	Silver	N001	0.2	ug/L	U	F	0.0002		valid
SW093	SL	9/11/2008	08091842	U-234	Uranium-234	N001	1.66	pCi/L		F	0.329	0.342	valid
SW093	SL	9/11/2008	08091842	U-235+236	Uranium-235/236	N001	0.22	pCi/L		F	0.181	0.118	J
SW093	SL	9/11/2008	08091842	U-238	Uranium-238	N001	1.46	pCi/L		F	0.189	0.313	valid
SW093	SL	9/15/2008	08101866	AM-241	Americium-241	N001	0.0118	pCi/L	U	F	0.0445	0.0181	valid
SW093	SL	9/15/2008	08101866	7440-41-7	Beryllium	N001	1	ug/L	U	F	0.001		valid
SW093	SL	9/15/2008	08101866	7440-43-9	Cadmium	N001	0.11	ug/L	U	F	0.00011		valid
SW093	SL	9/15/2008	08101866	7440-47-3	Chromium	N001	2	ug/L	U	F	0.002		valid
SW093	SL	9/15/2008	08101866	HARDNESS	Hardness	N001	582	mg/L		F	4		valid
SW093	SL	9/15/2008	08101866	PU-239,240	Plutonium-239, 240	N001	0.00517	pCi/L	U	F	0.0342	0.0268	valid
SW093	SL	9/15/2008	08101866	7440-22-4	Silver	N001	0.2	ug/L	U	F	0.0002		valid
SW093	SL	9/15/2008	08101866	U-234	Uranium-234	N001	4.96	pCi/L		F	0.301	0.718	valid
SW093	SL	9/15/2008	08101866	U-235+236	Uranium-235/236	N001	0.172	pCi/L		F	0.166	0.107	J
SW093	SL	9/15/2008	08101866	U-238	Uranium-238	N001	4.09	pCi/L		F	0.172	0.617	valid

EXPLANATION**SAMPLE_ID**

N00x = Sample was not filtered.
000x = Sample was filtered.

WATER_UNIT_OF_MEASURE

mg/L; ppm = milligrams per liter
pCi/L = picocuries per liter
ug/L = micrograms per liter
C = degrees celsius
mS/cm = millSiemens per centimeter
NTU = normal turbidity units
s.u. = standard pH units
uS/cm = microSiemens per centimeter
umhos/cm = microSiemens per centimeter

LAB_QUALIFIERS

- * Replicate analysis not within control limits.
- + Correlation coefficient for MSA < 0.995.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic & Radiochemistry: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated
- M GFAA duplicate injection precision not met.
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).

Appendix B1**Analytical Results for Water Samples - Third Quarter CY 2008**

LOCATION_CODE	LOCATION_TYPE	DATE_SAMPLED	LAB REQUISITION NUMBER	CAS	ANALYTE	SAMPLE_ID	RESULT	UNITS	LAB_QUALIFIERS	SAMPLE_TYPE	DETECTION_LIMIT	UNCER-TAINTY	DATA_VALIDATION_QUALIFIERS
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SAMPLE_TYPE

F = Field Sample

D = Duplicate

P > 25% difference in detected pesticide or Arochlor concentrations between 2 columns.

S Result determined by method of standard addition (MSA).

U Analytical result below detection limit.

W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.

X Laboratory defined (USEPA CLP organic) qualifier, see case narrative.

Y Laboratory defined (USEPA CLP organic) qualifier, see case narrative.

Z Laboratory defined (USEPA CLP organic) qualifier, see case narrative.

DATA_VALIDATION_QUALIFIERS

valid Result is valid.

F Low flow sampling method used.

G Possible grout contamination, pH > 9.

J Estimated value.

L Less than 3 bore volumes purged prior to sampling.

Q Qualitative result due to sampling technique

R Unusable result.

U Parameter analyzed for but was not detected.

X Location is undefined.

999 Validation not complete

LOCATION_TYPE

SL SURFACE LOCATION

TS TREATMENT SYSTEM

WL WELL

Appendix B2

Information for Composite Samples with Unavailable Data

Location	Sample Dates*	Status
GS01	5/22 12:31 - 12/8/2008 14:17	NSQ

* Analytical results are reported with the start date of the composite sampling period

> Composite sample end date to be determined

NSQ: non-sufficient quantity for analysis